ADEQ Arizona Department of Environmental Quality
Janice K. Brewer, Governor
Henry R. Darwin, Director

DRAFT PERMIT

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY CLASS I PERMIT

COMPANY: **Freeport-McMoRan Copper and Gold, Incorporated**
FACILITY: **Freeport-McMoRan Miami, Incorporated**
PERMIT #: **53592 (As Amended by Significant Revision No. 58409)**
DATE ISSUED: **Draft**
EXPIRY DATE: **November 25, 2017**

[NOTE: Changes to the Permit are indicated in red font and only these changes are open for public review and comment]

FACILITY SUMMARY

This Title V permit is issued to Freeport-McMoRan Miami, Inc., the Permittee, for the continued operation of their smelter located off of Hwy 60 in Claypool, Arizona. This permit renews and supersedes Permit No. 1000046 (as revised by Significant Permit Revision No. 29622).

Freeport-McMoRan Miami, Inc. operates a copper smelting facility in Claypool, AZ. The facility consists of an IsaSmelt® Furnace, Electric Furnace, Five (5) Converters (Four Hoboken and one Inspiration), two (2) Anode Furnaces and one (1) Utility Vessels, Electrolytic Refinery, Rod Plant, Acid Plant, and other support equipment.

The facility is classified as a Major Source pursuant to A.A.C. R18-2-101.61. The potential emission rates of the following pollutants are greater than major source thresholds: (i) particulate matter with an aerodynamic diameter less than 10 microns, (ii) sulfur dioxide, (iii) nitrogen oxides, (iv) carbon monoxide, and (v) hazardous air pollutants.

This permit is issued in accordance with Title 49, Chapter 3 of the Arizona Revised Statutes. All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 (A.A.C) and 40 Code of Federal Regulations (CFR). All terms and conditions of this permit are enforceable by the Administrator of the USEPA.

Significant Permit Revision Description

Significant revision #58409 authorizes the increase in the rated throughput of the facility from 850,000 tons per year of New Metal Bearing Material (NMBM) to 1,000,000 tons per year and incorporates upgrades to air pollution control measures that include converter aisle capture system for fugitive emissions, anode furnace baghouse, caustic scrubbers for tail gas stack, vent fume stack and aisle scrubber stack for reduction of SO_2 emissions.

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AIR QUALITY CONTROL PERMIT NO. 53592
(AS AMENDED BY SIGNIFICANT REVISION NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC.

I. PERMIT EXPIRATION AND RENEWAL

[ARS § 49-426.F, A.A.C. R18-2-304.C.2, and -306.A.1]

A. This permit is valid for a period of five years from the date of issuance.

B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not more than 18 months, prior to the date of permit expiration.

II. COMPLIANCE WITH PERMIT CONDITIONS

[A.A.C. R18-2-306.A.8.a and b]

A. The Permittee shall comply with all conditions of this permit including all applicable requirements of the Arizona Revised Statutes (A.R.S.) Title 49, Chapter 3, and the and air quality rules under Title 18, Chapter 2 of the Arizona Administrative Code. Any noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.

B. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE

[A.A.C. R18-2-306.A.8.c, -321.A.1, and -321.A.2]

A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

B. The permit shall be reopened and revised under any of the following circumstances

1. Additional applicable requirements under the Clean Air Act become applicable to the Class I source. Such a reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless an application for renewal has been submitted pursuant to A.A.C. R18-2-322.B. Any permit revision required pursuant to this subparagraph shall comply with the provisions in A.A.C. R18-2-322 for permit renewal and shall reset the five-year permit term.

2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.

3. The Director or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

4. The Director or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

C. Proceedings to reopen and reissue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall, except for reopenings under Condition III.B.1 above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in Condition III.B.1 above shall not result in a resetting of the five-year permit term.

IV. POSTING OF PERMIT

[A.A.C. R18-2-315]

A. The Permittee shall post this permit or a certificate of permit issuance where the facility is located in such a manner as to be clearly visible and accessible. All equipment covered by this permit shall be clearly marked with one of the following:

1. Current permit number; or

2. Serial number or other equipment ID number that is also listed in the permit to identify that piece of equipment.

B. A copy of the complete permit shall be kept on site.

V. FEE PAYMENT

[A.A.C. R18-2-306.A.9 and -326]

The Permittee shall pay fees to the Director pursuant to ARS § 49-426(E) and A.A.C. R18-2-326.

VI. ANNUAL EMISSION INVENTORY QUESTIONNAIRE

[A.A.C. R18-2-327.A and B]

A. The Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31st or ninety days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.

B. The questionnaire shall be on a form provided by the Director and shall include the information required by A.A.C. R18-2-327.

VII. COMPLIANCE CERTIFICATION

[A.A.C. R18-2-309.2.a, -309.2.c-d, and -309.5.d]

A. The Permittee shall submit a compliance certification to the Director semiannually, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than April 15th, and shall report the compliance status of the source during the period between September 1st of the previous year and February 28th or 29th of the current year. The second certification shall be submitted no later than October 15th, and shall report the compliance status of the source during the period between March 1st and August 31st of the current year.

The compliance certifications shall include the following:

1. Identification of each term or condition of the permit that is the basis of the certification;

2. Identification of the methods or other means used by the Permittee for determining the compliance status with each term and condition during the certification period,

3. The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the methods or means designated in Condition VII.A.2 above. The certifications shall identify each deviation and take it into account for consideration in the compliance certification;

4. For emission units subject to 40 CFR Part 64, the certification shall also identify as possible exceptions to compliance any period during which compliance is required and in which an excursion or exceedance defined under 40 CFR Part 64 occurred;

5. All instances of deviations from permit requirements reported pursuant to Condition XII.B of this Attachment; and

6. Other facts the Director may require to determine the compliance status of the source.

B. A copy of all compliance certifications shall also be submitted to the EPA Administrator.

C. If any outstanding compliance schedule exists, a progress report shall be submitted with the semi-annual compliance certifications required in Condition VII.A above.

VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

[A.A.C. R18-2-309.3]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

IX. INSPECTION AND ENTRY

[A.A.C. R18-2-309.4]

Upon presentation of proper credentials, the Permittee shall allow the Director or the authorized representative of the Director to:

A. Enter upon the Permittee's premises where a source is located, emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;

B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;

C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the

permit;

D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and

E. Record any inspection by use of written, electronic, magnetic and photographic media.

X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD

[A.A.C. R18-2-304.C.4]

If this source becomes subject to a standard promulgated by the Administrator pursuant to Section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

XI. ACCIDENTAL RELEASE PROGRAM

[40 CFR Part 68]

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the time line specified in 40 CFR Part 68.

XII. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING

A. Excess Emissions Reporting

[A.A.C. R18-2-310.01.A and -310.01.B]

1. Excess emissions shall be reported as follows:

   a. The Permittee shall report to the Director any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

      (1) Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from Condition XII.A.1.b below.

      (2) Detailed written notification by submission of an excess emissions report within 72 hours of the notification pursuant to Condition XII.A.1.a.(1) above.

   b. The report shall contain the following information:

      (1) Identity of each stack or other emission point where the excess emissions occurred;

      (2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

      (3) Date, time and duration, or expected duration, of the excess emissions;

(4) Identity of the equipment from which the excess emissions emanated;

(5) Nature and cause of such emissions;

(6) If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions; and

(7) Steps taken to limit the excess emissions. If the excess emissions resulted from start-up or malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.

2. In the case of continuous or recurring excess emissions, the notification requirements of this section shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period, or changes in the nature of the emissions as originally reported, shall require additional notification pursuant to Condition XII.A.1 above.

[A.A.C. R18-2-310.01.C]

B. Permit Deviations Reporting

1. The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Except as specified in Conditions I.C.8.d and XIX.A.5.c(2) of Attachment "B", prompt reporting shall mean that the report was submitted to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to an emergency or within two working days of the time when the owner or operator first learned of the occurrence of a deviation from a permit requirement.

[A.A.C. R18-2-306.A.5.b]

2. All instances of deviations from permit requirements shall be clearly identified in the required semiannual monitoring report specified in Condition I.B of Attachment "B" and shall be certified by the responsible official.

[A.A.C. R18-2-306.A.5.a]

C. Emergency Provision

[A.A.C. R18-2-306.E]

1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, that require immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2. An emergency constitutes an affirmative defense to an action brought for

noncompliance with such technology-based emission limitations if Condition XII.C.3 is met.

3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An emergency occurred and that the Permittee can identify the cause(s) of the emergency;

   b. The permitted facility was being properly operated at the time;

   c. During the period of the emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and

   d. The Permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.

4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

D. Compliance Schedule

[ARS § 49-426.I.5]

For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated.

E. Affirmative Defenses for Excess Emissions Due to Malfunctions, Startup, and Shutdown

[A.A.C. R18-2-310]

1. Applicability

   This rule establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

   a. Promulgated pursuant to Sections 111 or 112 of the Act;

   b. Promulgated pursuant to Titles IV or VI of the Clean Air Act;

   c. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. EPA;

   d. Contained in A.A.C. R18-2-715.F; or

e. Included in a permit to meet the requirements of A.A.C. R18-2-406.A.5.

2. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. When emissions in excess of an applicable emission limitation are due to a malfunction, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

a. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;

b. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

c. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;

d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

f. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

g. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;

h. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;

i. All emissions monitoring systems were kept in operation if at all practicable; and

j. The Permittee's actions in response to the excess emissions were documented by contemporaneous records

3. Affirmative Defense for Startup and Shutdown

a. Except as provided in Condition XII.E.3.b below, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. When emissions in excess of an applicable emission limitation are due to startup and shutdown, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

(1) The excess emissions could not have been prevented through careful and prudent planning and design;

(2) If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;

(3) The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

(4) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

(5) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

(6) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;

(7) All emissions monitoring systems were kept in operation if at all practicable; and

(8) Contemporaneous records documented the Permittee's actions in response to the excess emissions.

b. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Condition XII.E.2 above.

4. Affirmative Defense for Malfunctions during Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Condition XII.E.2 above.

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Condition XII.E.2 or XII.E.3 above, the Permittee shall demonstrate, through submission of the data and information required by Condition XII.E and A.A.C. R18-2-310.01, that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of the excess emissions.

XIII. RECORD KEEPING REQUIREMENTS

[A.A.C. R18-2-306.A.4]

A. The Permittee shall keep records of all required monitoring information including, but not limited to, the following:

1. The date, place as defined in the permit, and time of sampling or measurements;

2. The date(s) analyses were performed;

3. The name of the company or entity that performed the analyses;

4. A description of the analytical techniques or methods used;

5. The results of such analyses; and

6. The operating conditions as existing at the time of sampling or measurement.

B. The Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

C. All required records shall be maintained either in an unchangeable electronic format or in a handwritten logbook utilizing indelible ink.

XIV. REPORTING REQUIREMENTS

[A.A.C. R18-2-306.A.5.a]

The Permittee shall submit the following reports:

A. Compliance certifications in accordance with Section VII of Attachment "A".

B. Excess emission; permit deviation, and emergency reports in accordance with Section XII of Attachment "A".

C. Other reports required by any condition of Attachment "B".

XV. DUTY TO PROVIDE INFORMATION

[A.A.C. R18-2-304.G and -306.A.8.e]

A. The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the

Permittee shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.

B. If the Permittee has failed to submit any relevant facts or has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

XVI. PERMIT AMENDMENT OR REVISION

[A.A.C. R18-2-318, -319, and -320]

The Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under Section XVII, as follows:

A. Administrative Permit Amendment (A.A.C. R18-2-318);

B. Minor Permit Revision (A.A.C. R18-2-319); and

C. Significant Permit Revision (A.A.C. R18-2-320)

The applicability and requirements for such action are defined in the above referenced regulations.

XVII. FACILITY CHANGE WITHOUT A PERMIT REVISION

[A.A.C. R18-2-317]

A. The Permittee may make changes at the permitted source without a permit revision if all of the following apply:

1. The changes are not modifications under any provision of Title I of the Act or under ARS § 49-401.01(24);

2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions;

3. The changes do not violate any applicable requirements or trigger any additional applicable requirements;

4. The changes satisfy all requirements for a minor permit revision under A.A.C. R18-2-319.A; and

5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements.

B. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of Conditions XVII.A and XVII.C of this Attachment.

C. For each change under Conditions XVII.A and XVII.B above, a written notice by certified mail or hand delivery shall be received by the Director and the Administrator a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the

replacement of equipment, may be provided less than 7 working days in advance of the change, but must be provided as far in advance of the change~~,~~ as possible or, if advance notification is not practicable, as soon after the change as possible.

D. Each notification shall include:

1. When the proposed change will occur;

2. A description of the change;

3. Any change in emissions of regulated air pollutants; and

4. Any permit term or condition that is no longer applicable as a result of the change.

E. The permit shield described in A.A.C. R18-2-325 shall not apply to any change made under this Section.

F. Except as otherwise provided for in the permit, making a change from one alternative operating scenario to another as provided under A.A.C. R18-2-306.A.11 shall not require any prior notice under this Section.

G. Notwithstanding any other part of this Section, the Director may require a permit to be revised for any change that, when considered together with any other changes submitted by the same source under this Section over the term of the permit, do not satisfy Condition XVII.A above.

XVIII. TESTING REQUIREMENTS

[A.A.C. R18-2-312]

A. The Permittee shall conduct performance tests as specified in the permit and at such other times as may be required by the Director.

B. Operational Conditions during Testing

Tests shall be conducted during operation at the maximum possible capacity of each unit under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Director, testing may be performed at a lower rate. Operations during periods of start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative operational conditions unless otherwise specified in the applicable standard.

C. Tests shall be conducted and data reduced in accordance with the test methods and procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

D. Test Plan

At least 14 calendar days prior to performing a test, the Permittee shall submit a test plan to the Director in accordance with A.A.C. R18-2-312.B and the Arizona Testing Manual. This test plan must include the following:

1. Test duration;

2. Test location(s);

3. Test method(s); and

4. Source operation and other parameters that may affect test results.

E. Stack Sampling Facilities

The Permittee shall provide, or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;

2. Safe sampling platform(s);

3. Safe access to sampling platform(s); and

4. Utilities for sampling and testing equipment.

F. Interpretation of Final Results

Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control, compliance may, upon the Director's approval, be determined using the arithmetic mean of the results of the other two runs. If the Director or the Director's designee is present, tests may only be stopped with the Director's or such designee's approval. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes: forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation, which demonstrates good cause, must be submitted.

G. Report of Final Test Results

A written report of the results of all performance tests shall be submitted to the Director within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

XIX. PROPERTY RIGHTS

[A.A.C. R18-2-306.A.8.d]

This permit does not convey any property rights of any sort, or any exclusive privilege.

XX. SEVERABILITY CLAUSE

[A.A.C. R18-2-306.A.7]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain

valid and in force.

XXI. PERMIT SHIELD

[A.A.C. R18-2-325]

Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements identified in the portions of this permit subtitled "Permit Shield". The permit shield shall not apply to minor revisions pursuant to Condition XVI.B of this Attachment and any facility changes without a permit revision pursuant to Section XVII of this Attachment.

XXII. PROTECTION OF STRATOSPHERIC OZONE

[40 CFR Part 82]

If this source becomes subject to the provisions of 40 CFR Part 82, then the Permittee shall comply with these provisions accordingly.

XXIII. APPLICABILITY OF NSPS/NESHAP GENERAL PROVISIONS

[40 CFR Part 60, Part 63]

For all equipment subject to a New Source Performance Standard, the Permittee shall comply with all applicable requirements contained in Subpart A of Title 40, Chapter 60 and Chapter 63 of the Code of Federal Regulations.

ATTACHMENT "B": SPECIFIC CONDITIONS
AIR QUALITY CONTROL PERMIT NO. 53592
(AS AMENDED BY SIGNIFICANT REVISION NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC

I. GENERAL REQUIREMENTS

A. The Permittee shall have on site or on call a person that is certified in EPA Reference Method 9.

[A.A.C. R18-2-306.A.2]

B. At the time the compliance certifications required by Section VII of Attachment "A" are submitted, the Permittee shall submit reports of all monitoring activities required by this Attachment performed in the same six month period as applies to the compliance certification period.

[A.A.C. R18-2-306.A.5.a].

C. 40 CFR Part 63 Subpart QQQ General Requirements

In addition to specific requirements in this Attachment, the following general requirements shall be applicable to all National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart QQQ affected sources.

1. The Permittee shall comply with the following general provisions of 40 CFR Part 63, Subpart "A":

[40 CFR 63.1457]

40 CFR 63.1, 63.2, 63.3, 63.4, 63.5, 63.6 (a)-(g), 63.6 (i)-(j), 63.7 (a)(3) and (b)-(h), 63.8 excluding 63.8(a)(4), (c)(4), and (f)(6), 63.9, 63.10 excluding 63.10(b)(2)(xiii) and (c)(7)-(8), 63.12, and 63.13-63.15.

2. The Permittee shall control particulate matter emissions from fugitive dust sources at the primary copper smelter by operating according to a written fugitive dust control plan that has been approved by the Director. For the purposes of complying with this requirement, the Permittee may use an existing fugitive dust control plan provided that the plan complies with the requirements detailed in Attachment "E".

[40 CFR 63.1445]

3. The Permittee shall develop and implement a written startup, shutdown, and malfunction plan according to the provisions in 40 CFR63.6(e)(3).

[40 CFR 63.1448(c)]

4. Air Pollution Control Equipment

   a. The Permittee shall always operate and maintain all equipment subject to 40 CFR 63 Subpart QQQ, including the associated air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart QQQ.

[40 CFR 63.1447(a) and A.A.C. R18-2-331]
[Material Permit Condition identified by underline]

b. The Permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system and control device as detailed in Attachment "F".

[40 CFR 63.1447(b)]

5. Compliance Requirements

a. The Permittee shall be in compliance with the emission limitations, work practice standards, and operation and maintenance requirements at all times, except during periods of startup, shutdown, and malfunction as defined in 40 CFR 63.2.

[40 CFR 63.1448(a)]

b. The Permittee shall demonstrate continuous compliance by implementing the fugitive dust control measures specified for the sources in the written fugitive dust control plan as prepared in accordance with Attachment "E".

[40 CFR 63.1453(f)]

6. Monitoring Requirements

a. Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

[40 CFR 63.1452(e)]

b. The Permittee shall not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data available requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.

[40 CFR 63.1452(f)]

c. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

[40 CFR 63.1452(g)]

7. Notification Requirements

a. The Permittee shall submit all of the notifications in 40 CFR 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (h) by the specified dates.

[40 CFR 63.1454(a)]

b. The Permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in 40 CFR 63.7(b)(1).

[40 CFR 63.1454(d)]

8. Reporting Requirements

[40 CFR 63.1455]

a. The Permittee shall submit each of the following reports as applicable:

(1) The Permittee shall submit a compliance report semiannually according to the requirements in Condition I.C.8.b below and containing the information in Condition I.C.8.c below.

(2) The Permittee shall submit an immediate startup, shutdown, and malfunction report if there was a startup, shutdown, or malfunction during the reporting period that is not consistent with the startup, shutdown, and malfunction plan. The Permittee shall report the actions taken for the event by fax or telephone within 2 working days after starting actions inconsistent with the plan. The Permittee shall submit the information in 40 CFR § 63.10(d)(5)(ii) by letter within 7 working days after the end of the event unless alternate arrangements have been made with the Director.

Timely reporting and submittal of information regarding deviation from startup, shutdown, and malfunction plan, as specified above, shall be considered as compliance with permit conditions, and such deviation will not be reportable as a "Permit Deviation Reporting" as specified in Condition XII.B of Attachment A.

b. The Permittee shall submit each compliance report required in Condition I.C.8.a above in accordance with Condition VII in Attachment "A".

c. Each compliance report shall contain the following information in Conditions I.C.8.c(1) through (3) below and, as applicable, Conditions I.C.8.c(4) through (8).

(1) Company name and address.

(2) Statement by a responsible official, as defined in 40 CFR 63.2, with that official's name, title, and signature, certifying the accuracy and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If there was a startup, shutdown or malfunction during the reporting period and actions were taken consistent with the startup, shutdown, and malfunction plan, the compliance report shall include the information in 40 CFR 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit) that apply to this source and there are no deviations from the requirements for work practice standards in 40 CFR 63, Subpart QQQ, a statement that there were no deviations from the emission

limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which an operating parameter monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the monitoring system was out-of-control during the reporting period.

(7) For each deviation from an emission limitation (emission limit, operating limit, opacity limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where the Permittee is not using a continuous monitoring system to comply with the emission limitations or work practice standards in Subpart QQQ, the compliance report shall contain the information in Conditions I.C.8.c(1) through (4) above and the information in Conditions I.C.8.c(7)(a) and (7)(b) below. This includes periods of startup, shutdown, and malfunction.

(a) The total operating time of each affected source during the reporting period.

(b) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(8) For each deviation from an emission limitation (emission limit, operating limit, opacity limit, and visible emission limit) occurring at an affected source where the Permittee is using an operating parameter monitoring system to comply with the emission limitation in Subpart QQQ, the Permittee shall include the information in Conditions I.C.8.c(1) through (4) of this Section and the information in Conditions I.C.8.c(8)(a) through (k) below. This includes periods of startup, shutdown, and malfunction.

(a) The date and time that each malfunction started and stopped.

(b) The date and time that each monitoring system was inoperative, except for zero (low-level) and high-level checks.

(c) The date, time and duration that each monitoring system was out-of-control, including the information in § 63.8(c)(8).

(d) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(e) A summary of the total duration of the deviation during

the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(f) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(g) A summary of the total duration of monitoring system downtime during the reporting period and the total duration of monitoring system downtime as a percent of the total source operating time during that reporting period.

(h) A brief description of the process units.

(i) A brief description of the monitoring system.

(j) The date of the latest monitoring system certification or audit.

(k) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

d. The Permittee shall report all deviations from the applicable requirements of 40 CFR 63, Subpart QQQ in the semiannual monitoring report required pursuant to Condition I.C.8.a of this Attachment. If the semiannual compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), or work practice requirement in Subpart QQQ, submission of the compliance report is deemed to satisfy the obligation to report the same deviations in the semiannual monitoring report specified in Condition I.B of this Attachment. For the purpose of permit deviation reporting in Condition XII.B of Attachment "A", prompt reporting of deviations from applicable Subpart QQQ requirements shall mean that the Permittee report these deviations in the semiannual compliance report pursuant to Condition I.C.8.a of this Attachment.

9. Recordkeeping Requirements

[40 CFR 63.1456]

a. The Permittee shall keep the following records:

(1) A copy of each notification and report submitted to comply with 40 CFR 63, Subpart QQQ, including all documentation supporting any initial notification or notification of compliance status submitted according to the requirements in 40 CFR 63.10(b)(2)(xiv).

(2) The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records or performance tests and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).

(4) For each monitoring system, the Permittee shall keep records specified below:

(a) Records described in 40 CFR 63.10(b)(2)(vi) through (xi).

(b) Previous (i.e., superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).

(c) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) For each performance test conducted to demonstrate compliance with an opacity limit according to Condition VI.A.5 of this Attachment, the Permittee shall keep the records specified in Conditions I.C.9.a(5)(a) through (i) below.

(a) Dates and time intervals of all opacity observation period segments;

(b) Description of overall smelter operating conditions during each observation period. Identify, if any, the smelter copper production process equipment that was out-of-service during the performance test and explain why this equipment was not in operation;

(c) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in performance test;

(d) Name, title, and affiliation for each indoor process monitor participating in the performance test;

(e) Copies of all visible emission observer opacity field data sheets;

(f) Copies of all indoor process monitor operating log sheets;

(g) Copies of all data summary sheets used for data reduction;

(h) Copy of calculation sheets of the average opacity value used to demonstrate compliance with the opacity limit; and

(i) Documentation according to the requirements in Condition VI.A.5.i(4) of this Attachment to support the selection of the site-specific capture system operating

limits used for each batch copper converter capture system when blowing.

b. Records shall be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).

c. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

d. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records off site for the remaining 3 years.

10. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with 40 CFR 63.1444(a), 40 CFR 63.1445, 40 CFR 63.1447(a) and (b), 40 CFR 63.1448(a) and (c), 40 CFR 63.1451(i), 40 CFR 63.1452(e), (f) and (g), 40 CFR 63.1453, 40 CFR 63.1454, 40 CFR 63.1455, 40 CFR 63.1456, 40 CFR 63.14.

D. Periodic Opacity Monitoring Requirements

1. A certified EPA Reference Method 9 observer shall conduct, in accordance with the observation plan approved on October 9, 2008 or any subsequently approved observation plan, bi-weekly surveys of visible emissions from the stacks and fugitive dust sources, as identified in the permit.

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-310.01]

2. If the observer, during the visual survey, does not observe any plume that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

3. If the observer sees visible emissions that on an instantaneous basis appear to exceed the opacity standard, then the observer shall, if practicable, take a six-minute Method 9 observation of the plume.

4. If the six-minute opacity reading of the plume exceeds the applicable opacity standard, then the Permittee shall do the following:

a. Adjust or repair the controls or equipment to reduce opacity to or below the opacity standard;

b. Document the results of the EPA Reference Method 9 observation and all corrective action taken; and

c. Report the event as an excess emission for opacity in accordance with Condition XII.A.1 of Attachment "A."

5. If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:

a. Location, date, and time of the test; and

b. The results of the EPA Reference Method 9 observation

E. Emissions Control and Capacity Enhancement Project

[A.A.C. R18-2-306.A.2]

1. Emissions Control and Capacity Enhancement Project, (herein after referred to as Project) includes the following changes for capacity enhancement and pollution control to the facility:

a. Replacement of the 12 feet diameter IsaSmelt® furnace with a 15 feet diameter IsaSmelt® furnace;

b. Reconfiguration of the converter roofline to maximize capture of process fugitive emissions and routing of the captured fugitive emissions to a new aisle scrubber using caustic for SO_2 removal.

c. Capture of fugitive emissions from the anode furnaces and utility vessel, routing of captured emissions to a quench tower followed by the anode baghouse. Emissions will then be routed to the new aisle scrubber;

d. Upgrade of vent fume scrubber and the acid plant tail gas scrubber to use caustic for SO_2 removal; and,

e. Replacement of vent fume stack and acid plant tail gas stack with stacks of increased height.

2. Commencement of operation of the facility after completion of all the above Project improvements shall be deemed "Project startup."

3. The Permittee shall provide notification of the date of startup within 15 days of the Project startup.

4. Not later than 180 days from Project startup, the Permittee shall demonstrate compliance the emission limits identified in Section II.B of this permit.

II. FACITY-WIDE REQUIREMENTS

A. Feed Limitations

1. Throughput Restrictions

a. Until Project startup, the maximum feed rate of new metal bearing material shall be limited to 850,000 dry tons per year of concentrate to the furnaces (IsaSmelt® and Electric), calculated as a twelve month rolling sum.

[Condition VIII.A of Attachment B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. *Upon Project startup, the Permittee shall limit the maximum feed rate of new metal bearing material to 1,000,000 dry tons per year of concentrate*

to the furnaces (IsaSmelt® and Electric), calculated as a twelve month rolling sum.

[A.A.C. R18-2-306.01 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall log and maintain daily records of the amounts of concentrate feed to the furnace. At the end of every month, the Permittee shall update the monthly and rolling twelve month totals of concentrate feed. These records shall be available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with Condition VIII.A of Attachment B of Installation Permit #1232.

[A.A.C. R18-2-325]

B. Combined Emission Limitations for Smelter Processes

1. Sulfur Dioxide (SO_2)

a. Emission Limitation

Upon Project startup, the Permittee shall comply with the following emission limitations.

[A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

(1) *Combined SO_2 emissions from the tail gas stack, vent fume stack, aisle scrubber stack, and smelter roofline fugitives shall not exceed 477 tons per year on a 365-day rolling total basis.*

(2) *Combined SO_2 emissions from the tail gas stack, vent fume stack, and aisle scrubber stack shall not exceed 128 tons per year on a 365-day rolling total basis.*

b. Compliance Demonstration

No later than 180 days from Project startup, the Permittee shall demonstrate compliance with SO_2 emission limits in Condition II.B.1.a in accordance with following:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record daily total SO_2 emissions for each stack (tail gas stack, vent fume stack, and aisle scrubber stack,) based on CEMS data specified in Conditions IV.C.3.e, V.B.3.b(5) and VI.C.3.b for the respective stacks.

(2) The Permittee shall calculate and record daily total SO_2 emissions from the roofline based on data collected from the roofline SO_2 emission monitors specified in Condition VIII.B.2.c.

(3) To demonstrate compliance with emission limitations in Condition II.B.1.a(1) and (2),

(a) For the first 365 days, at the end of each day, the Permittee shall calculate and record the daily and daily running total of SO_2 emissions from:

(i) The tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives to demonstrate compliance with the emission limitation in Condition II.B.1.a(1).

(ii) The tail gas stack, vent fume stack, and aisle scrubber stack to demonstrate compliance with the emission limitation in Condition II.B.1.a(2).

(b) After the first 365 days, at the end of each day, the Permittee shall calculate and record daily and 365-day rolling total of SO_2 emissions from:

(i) The tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives to demonstrate compliance with emission limitation in Condition II.B.1.a(1).

(ii) The tail gas stack, vent fume stack, and aisle scrubber stack to demonstrate compliance with the emission limitation in Condition II.B.1.a(2).

2. Particulate Matter

a. Emission Limitation

Upon Project startup, the Permittee shall not exceed the following combined particulate matter emissions limit from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives:

[A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

(1) Particulate matter (PM): 364 tons per year on 12-month rolling total basis

(2) Particulate matter less than 10 microns (PM_{10}): 287 tons per year on 12-month rolling total basis

(3) Particulate matter less than 2.5 microns ($PM_{2.5}$): 221 tons per year on 12-month rolling total basis

b. Compliance Demonstration

No later than 180 days from Project startup, the Permittee shall demonstrate compliance with particulate matter emission limits in Condition II.B.2.a above in accordance with following:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record combined monthly emissions for the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives for PM, PM_{10} and $PM_{2.5}$ based on the monthly emissions calculated and recorded pursuant to Conditions IV.A.2.b(2)(a), V.A.3.b(2)(a), VI.B.3.d(1) and VIII.A.6.b(1).

(2) To demonstrate compliance with emission limitations in Condition II.B.2.a(1), (2) and (3),

(a) During the first 12-month period, at the end of each month, the Permittee shall calculate and record running monthly total of combined particulate matter emissions from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives based on monthly emissions calculated and recorded pursuant to Condition II.B.2.b(1) above.

(b) After the initial 12-month period, at the end of each month, the Permittee shall calculate and record rolling 12-month total of combined emissions from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives based on the monthly emissions calculated and recorded pursuant to Condition II.B.2.b(1) above.

3. Lead

a. Emission Limitation

Upon Project startup, the Permittee shall not exceed 5.17 tons per year of combined lead emissions from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives.

[A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. Compliance Demonstration

No later than 180 days from Project startup, the Permittee shall demonstrate compliance with lead emission limits in Condition II.B.3.a above in accordance with following:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record monthly total lead emissions from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives based on the monthly emissions calculated and recorded pursuant to Conditions IV.B.2.b(1), V.C.2.b(1), VI.D.2.a and VIII.C.2.c(1).

(2) To demonstrate compliance with emission limitations in Condition II.B.3.a,

(a) During the first 12-month period, at the end of each month, the Permittee shall calculate and record running

monthly total lead emissions from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives based on the total monthly emissions calculated and recorded pursuant to Condition II.B.3.b(1) above.

(b) After the first 12-month period, at the end of each month, the Permittee shall calculate and record monthly total and rolling 12-month total lead emissions from the tail gas stack, vent fume stack, aisle scrubber stack and smelter roofline fugitives based on the total monthly emissions calculated and recorded pursuant to Condition II.B.3.b(1) above.

III. MATERIAL HANDLING AND BEDDING PLANT

A. Emission Limitations and Standards

1. *Until Project startup, the Permittee shall not exceed the emission rate limits in Attachment "C" for particulate matter emissions from the flux bin, revert bin, coal bin, and concentrate bin.*

[Condition II.E of Att. B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. The Permittee shall not cause, allow or permit the discharge of particulate matter into the atmosphere from the stacks associated with flux bin, revert bin, coal bin, concentrate bin, and upon Project startup, from the hydrated lime silo and anode furnace dust bin, in total quantities in excess of the amount calculated by one of the following equations:

[A.A.C. R18-2-715.A]

a. For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.10P^{0.67}$

Where

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

b. For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55.0P^{0.11} - 40$

Where "E" and "P" are defined as indicated in Condition III.A.2.a above.

3. The Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent from any point source that exceeds 20% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B.3]

B. Air Pollution Control Requirements

1. *The Permittee shall* maintain and *operate the baghouses associated with the flux bin, revert bin, coal bin and concentrate bin for minimizing particulate matter emissions.*

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

2. *Upon Project startup, the Permittee shall install,* maintain and *operate the baghouses associated with hydrated lime silo and anode furnace dust bin for minimizing particulate matter emissions.*

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are identified by italics and underline]

3. *The Permittee shall* maintain and *operate the water sprays associated with revert separation device, flux bin, revert bin, coal bin, and concentrate bin for minimizing particulate matter emissions*.

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

C. Monitoring, Recordkeeping, and Reporting Requirements

1. Opacity

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the stacks associated with the material handling and bedding plant, when in operation, as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

2. Particulate Matter Emissions

a. At the end of every calendar month, the Permittee shall calculate monthly emissions of particulate matter for the flux bin, revert bin, coal bin, concentrate bin by multiplying the average hourly emission rate from the most recent performance test by the hours of operation of the material handling and bedding plant during the calendar month. The Permittee shall calculate rolling 12-month emissions (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

b. The Permittee shall maintain records of the monthly hours of operation, and rolling 12-month hours of operation for the material handling and bedding plant.

[A.A.C. R18-2-306.A.3.c]

c. The Permittee shall maintain records of the monthly and rolling 12-month total of particulate matter emissions from the concentrate, flux, coal, and revert bins from the material handling and bedding plant (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

d. If the performance tests in Condition III.D below show a particulate matter emission rate of 0.073 lb/hour or lower, the Permittee will not be required to perform the monitoring stipulated in Conditions III.C.2.a through c above.

[A.A.C. R18-2-306.A.3.c]

D. Performance Testing Requirements

The Permittee shall conduct or cause to be conducted, performance tests on two representative stacks from the flux bin, revert bin, coal bin and concentrate bin in the first year of the permit term to show compliance with the emission limits specified in Attachment "C". EPA Reference Method 5 in 40 CFR 60, Appendix A shall be used to determine emissions of PM.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with Condition II.E of Att. B of Installation Permit #1232, A.A.C. R18-2-702.B and A.A.C. R18-2-715.A.

[A.A.C. R18-2-325]

IV. PROCESS GASES FROM ISASMELT® FURNACE, ELECTRIC FURNACE AND CONVERTERS (Acid Plant Tail Gas Stack)

A. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. *Until Project startup, the Permittee shall not exceed the particulate matter emission rate from the acid plant tail gas stack in Attachment "C".*

[Condition II.E of Att. B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. The Permittee shall not cause, allow or permit the discharge of particulate matter into the atmosphere in excess of the amounts calculated by one of the following equations:

[A.A.C. R18-2-715.A]

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.10P^{0.67}$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour of all materials introduced into a process source, including fuels, where these contribute to pollution generated by the source.

(2) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$$E = 55P0^{.11} - 40$$

Where "E" and "P" are defined as indicated in Condition IV.A.1.b(1) above.

c. The Permittee shall not discharge or cause to be discharged to the atmosphere any process off-gas that contains non-sulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in Condition IV.A.3.d.

[40 CFR 63.1444(b)(1)]

d. The Permittee shall not cause to be discharged from the acid plant tail stack, any visible emissions which exhibit greater than 20 percent opacity.

[40 CFR 60.164(b)]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Opacity

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the acid plant tail gas as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

b. Particulate Matter Emissions

(1) Until Project startup, the Permittee shall comply with the following Conditions:

[A.A.C. R18-2-306.A.3.c]

(a) At the end of every calendar month, the Permittee shall calculate monthly emissions of particulate matter from the acid plant tail stack by multiplying the average hourly emission rate from the most recent performance test under Condition IV.A.3.a by the number of hours of operation of the acid plant during the calendar month. The Permittee shall calculate rolling 12-month emissions (sum of the current month and prior eleven (11) most recent months).

(b) The Permittee shall maintain records of the monthly hours of operation of the acid plant and the year-to-date total, i.e., the sum of the current month and the eleven (11) previous months.

(c) The Permittee shall maintain records of the monthly and rolling 12-month particulate matter emissions (sum of the current month and prior eleven (11) most recent months).

(2) No later than 180 days from Project startup, the Permittee shall comply with the following:

[A.A.C. R18-2-306.A.3.c]

(a) The Permittee shall calculate and record monthly

particulate matter (PM, PM_{10} and $PM_{2.5}$) emissions from the tail gas stack by multiplying the average hourly emission rate derived from the two most recent performance tests under Condition IV.A.3.b by the number of hours of operation of the acid plant during the calendar month. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

(b) The Permittee shall maintain records of monthly hours of operation of the acid plant.

(c) The monthly emissions calculated and recorded pursuant to Condition IV.A.2.b(2)(a) above shall be used to demonstrate compliance with the emission limits in Condition II.B.2.a.

3. Performance Testing Requirements

a. Until Project startup, the Permittee shall conduct or cause to be conducted, semi-annual performance tests on the acid plant tail gas stack for Particulate Matter (PM) to show compliance with the emission limits specified in Condition IV.A.1.a. Arizona Method A1 shall be used to determine the emissions of PM.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

b. No later than 180 days from Project startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the acid plant tail gas stack for particulate matter emissions. Subsequent performance tests shall be conducted semiannually. EPA Reference Method 5 in 40 CFR 60 Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine the emissions of PM. All PM measured by the above reference method shall be considered to have an aerodynamic diameter less than 2.5 microns, or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM_{10} and $PM_{2.5}$.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

c. The Permittee shall conduct an annual EPA Reference Method 9 opacity observation for the acid plant tail gas stack.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

d. To demonstrate continuous compliance with the emission limitation in Condition IV.A.1.c, the Permittee shall conduct annual performance tests according to the test methods specified below.

[40 CFR 63.1453(a)(2)]

(1) The Permittee shall determine the concentration of non-sulfuric acid particulate matter emissions according to the following test methods in Appendix "A" of 40 CFR 60:

[40 CFR 63.1450(b)(1)]

(a) Method 1 to select sampling port locations and the number of traverse points. Sampling ports shall be located at the outlet of the control device and prior to

any releases to the atmosphere.

(b) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(c) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(d) Method 4 to determine the moisture content of the stack gas.

(e) Method 5B to determine the non-sulfuric acid particulate matter emissions.

(2) The Permittee shall conduct three separate test runs for each performance test. Each test run shall have a minimum sampling time of 240 minutes and a minimum sampling volume of 3.4 dscm. For the purpose of determining compliance with the non-sulfuric acid particulate matter emission limit, the arithmetic mean of the results for the three separate test runs shall be used.

[40 CFR 63.1450(b)(2)]

4. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Condition II.E of Att B of Installation Permit #1232, A.A.C. R18-2-715.A, 40 CFR 60.164(b), 40 CFR 63.1444(b)(1), 40 CFR 63.1450(b) and 40 CFR 63.1453(a)(2).

[A.A.C. R18-2-325]

B. Lead

1. Emission Limitations

Until Project startup, the Permittee shall not exceed the emission limit for Lead specified in Attachment "C".

[Condition I.A of Minor Revision #1232R1 to Installation Permit1232 and A.A.C. R18-2-331.A.3.a]

[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Until Project startup, the Permittee shall comply with the following Conditions:

(1) At the end of every calendar month, the Permittee shall calculate monthly emissions of lead from the acid plant tail stack by multiplying the average hourly emission rate from the most recent performance test under Condition IV.B.3.a by the number of hours of operation of the acid plant during the calendar month. The Permittee shall calculate rolling 12-month emissions (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

(2) The Permittee shall maintain records of the monthly hours of operation of the acid plant and the year-to-date total, i.e., the sum

of the current month and the eleven (11) previous months.

[A.A.C. R18-2-306.A.3.c]

(3) The Permittee shall maintain records of the monthly and rolling 12-month lead emissions (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

b. No later than 180 days from Project startup, the Permittee shall comply with the following Conditions:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record monthly lead emissions from the tail gas stack by multiplying the average hourly emission rate from the two most recent performance tests under Condition IV.B.3.b by the number of hours of operation of the acid plant during the calendar month. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

(2) The Permittee shall maintain records of monthly hours of operation of the acid plant.

(3) The monthly emissions calculated and recorded pursuant to Condition IV.B.2.b(1) above shall be used to demonstrate compliance with the emission limits in Condition II.B.3.a.

3. Performance Testing Requirements

a. Until Project startup, the Permittee shall conduct semi-annual performance tests on the acid plant tail stack for emissions of Lead using EPA Reference Method 29.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

b. No later than 180 days from Project startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the acid plant tail gas stack for lead emissions. Subsequent performance tests shall be conducted semiannually. EPA Reference Method 29 shall be used for determining lead emissions.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Condition I.A of Minor Revision #1232R1 to Installation Permit1232.

[A.A.C. R18-2-325]

C. Sulfur Dioxide (SO_2)

1. Emission Limitations and Standards

a. *Until Project startup, the Permittee shall not exceed emission limit for sulfur dioxide specified in the Attachment "C" for the acid plant tail gas stack.*

[Condition II.E of Att B of Installation Permit #1232 & A.A.C. R18-2-331.A.3.a]

b. The Permittee shall not cause to be discharged into the atmosphere from the acid plant tail stack gases containing sulfur dioxide in excess of 0.065 percent by volume.

[40 CFR 60.163(a)]

2. Air Pollution Control Requirements

a. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable,* maintain and *operate the acid plant in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions from the process gases associated with the IsaSmelt® furnace, electric furnace, and the converters.*

[40 CFR 60.11(d) and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

b. *Until Project startup, the Permittee shall, to the extent practicable,* maintain and *operate the chemical scrubber in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions from the process gases associated with the IsaSmelt® furnace, electric furnace, and the converters*.

[40 CFR 60.11(d) and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

c. *Upon Project startup, the Permittee shall, install, operate* and maintain *the scrubber using caustic as the reagent, in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions*.

[40 CFR 60.11(d) and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

3. Monitoring, Recordkeeping and Reporting Requirements

a. Except during periods of system breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall continue to operate a continuous emission monitoring system (CEMS) to monitor and record sulfur dioxide emissions from the acid plant tail gas stack. The span of this system shall be set at a sulfur dioxide concentration of 0.2 percent by volume.

[40 CFR 60.13(e), 40 CFR 60.165(b)(2)]

b. Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system.

[40 CFR 60.165(c)]

c. For reporting purposes, periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system, exceed the standard (0.065 percent by volume). The Administrator will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour period during the quarter as indicative of a potential violation of 60.11(d), provided the acid plant is maintained

and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[40 CFR 60.165(d)(2)]

d. SO_2 CEMS shall comply with the requirements for Continuous Monitoring Systems under Section X of this Attachment.

[A.A.C. R18-2-306.A.3.c]

e. Utilizing SO_2 CEMS data in Condition IV.C.3.a, the Permittee shall calculate and record hourly SO_2 emissions from the acid plant tail gas stack for the purpose of demonstrating compliance with sulfur dioxide emission limits in Condition II.B.1.a.

[A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Condition II.E of Att. B of Installation Permit #1232, 40 CFR 60.163(a), 40 CFR 60.165(b)(2), 40 CFR 60.165(c), and 40 CFR 60.165(d)(2).

[A.A.C. R18-2-325]

D. Nitrogen Oxides

1. Emission Limitations/Standards

a. Until Project startup, the Permittee shall limit the nitrogen oxide emissions from the tail gas stack of the acid plant to not more than 425 tons per year. The average hourly nitrogen oxides emission rate shall be no greater than 97.5 pounds per hour.

[Condition II.A.1 of Att. B of Significant Revision #1000266 to Installation Permit #1232, A.A.C. R18-2-406.A.4]

b. *Upon Project startup, the Permittee shall limit the NO_X emissions from the tail gas stack to not more than 175 tons per year on a 365-day rolling total basis.*

[A.A.C. R18-2-306.01.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Performance Testing Requirements

a. Until Project startup, the Permittee shall comply with the Conditions IV.D.2.a(1) through (4) below to demonstrate compliance with the emission standard specified in Condition IV.D.1.a:

(1) The Permittee shall conduct or cause to be conducted, semi-annual performance tests on the acid plant tail gas stack for nitrogen oxides. EPA Reference Method 7E shall be used to determine the emissions of NO_X. The performance test will consist of three runs, each lasting 4 hours.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

(2) At the end of every calendar month, the monthly emissions of nitrogen oxides shall be calculated by multiplying the average hourly emission rate from the most recent performance test by

the hours of operation of the acid plant during the calendar month. The annual emissions shall be calculated as the rolling sum of that calendar month and prior eleven (11) most recent months.

[A.A.C. R18-2-306.A.3.c]

(3) The Permittee shall maintain records of the monthly hours of operation of the acid plant and the year-to-date total, i.e., the sum of the current month and the eleven (11) previous months.

[A.A.C. R18-2-306.A.3.c]

(4) The Permittee shall maintain records of the monthly emissions of nitrogen oxides from the acid plant and the year-to-date total, i.e., the sum of the current month and the eleven (11) previous months.

[A.A.C. R18-2-306.A.3.c]

b. Upon Project startup, the Permittee shall comply with the following:

(1) *Except during periods of system breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall install, calibrate,* operate and maintain *a continuous emission monitoring system (CEMS) to monitor and record nitrogen oxide emissions from the acid plant tail stack.* The NO_X CEMS shall comply with the requirements for Continuous Emissions Monitoring Systems under Section X of this Attachment.

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

(2) The Permittee shall use NO_X CEMS data to calculate and record hourly and daily NO_X emissions from the tail gas stack.

[A.A.C. R18-2-306.A.3.c]

(3) No later than 180 days from Project startup, the Permittee shall demonstrate compliance with NO_X emission limitations in Condition IV.D.1.b as follows:

[A.A.C. R18-2-306.A.3.c]

(a) For the first 365 days, at the end of each day, the Permittee shall calculate and record daily running total of NO_X emissions from the tail gas stack.

(b) After the first 365 days, at the end of each day, the Permittee shall calculate and record 365-day rolling total of NO_X emissions from the tail gas stack.

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Condition II.A.1 of Att. B of Significant Revision #1000266 to Installation Permit #1232.

[A.A.C. R18-2-325]

V. CAPTURED FUGITIVES FROM THE ISASMELT® FURNACE AND THE ELECTRIC FURNACE (Vent Fume Stack)

A. Particulate Matter and Opacity

1. Emission Limitations/Standards

a. *Until Project startup, the Permittee shall not exceed the emission rate limit specified for the vent fume stack in Attachment "C" for particulate matter.*

[Condition II.E of Att B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. The Permittee shall not cause, allow or permit the discharge of particulate matter from the vent fume stack into the atmosphere in excess of the amounts calculated by one of the following equations:

[A.A.C. R18-2-715.A]

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.10P^{0.67}$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour of all materials introduced into a process source, including fuels, where these contribute to pollution generated by the source.

(2) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

Where "E" and "P" are defined as indicated in Condition V.A.1.b(1) above.

c. The Permittee shall not discharge to the atmosphere from the capture system used to comply with Condition V.A.2.b below any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in Condition V.A.4.c of this Attachment.

[40 CFR 63.1444(b)(2)(ii)]

d. The Permittee shall not cause to be discharged into the atmosphere from the vent fume stack any visible emissions which exhibit greater than 20 percent opacity per EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. *The Permittee shall* maintain and *operate the scrubber and wet electrostatic precipitator (WESP) system associated with the vent fume stack in a manner consistent with good air pollution control practice for minimizing particulate matter emissions*.

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

b. *The Permittee shall operate a capture system that collects the gases and fumes released from the tapping port in use at all times when copper matte or slag is tapped from the smelting furnace*. The design and placement of the capture system required shall be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

[40 CFR 63.1444(b)(2)(i), A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

c. The Permittee shall maintain the hourly average water flow rate at or above the minimum levels established during the most recent performance test for the scrubber applied to meet total particulate matter emission limit in Condition V.A.1.c.

[40 CFR 63.1444(h)]

d. The Permittee shall maintain the hourly average values for power for the ESPs within the limits established during the most recent performance test.

[40 CFR 63.1444(h)]

e. *The Permittee shall* maintain and *operate a bypass duct on the Electric Furnace in accordance with good air pollution control practices to allow the gases to be directed to the vent fume system during periods of startup and shut down when the hot gas fans are not operational. The Permittee shall not vent any gases directly to atmosphere at the electric furnace.*

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are identified by italics and underline]

3. Monitoring, Recordkeeping, and Reporting Requirements

a. Opacity Monitoring for the Vent Fume Stack

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the vent fume stack as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

b. Emissions monitoring for the Vent Fume Stack

(1) Until Project startup, the Permittee shall comply with the following requirements

(a) At the end of every calendar month, the Permittee shall calculate the monthly emissions of particulate matter

from the vent fume stack by multiplying the average hourly emission rate determined from the most recent performance test under Condition V.A.4.a by the hours of operation of the process equipment associated with the vent fume stack during the calendar month. The Permittee shall calculate rolling 12-month emissions (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

(b) The Permittee shall maintain records of the monthly and rolling 12-month (sum of the current month and prior eleven (11) most recent months) hours of operation of the process equipment associated with the vent fume stack.

[A.A.C. R18-2-306.A.3.c]

(c) The Permittee shall maintain records of the monthly and rolling 12-month (sum of the current month and prior eleven (11) most recent months) emissions of particulate matter from the vent fume stack.

[A.A.C. R18-2-306.A.3.c]

(d) The Permittee shall maintain records of the monthly average stack flow rate on a 12-month rolling basis.

[A.A.C. R18-2-306.A.3.c]

(2) No later than 180 days from Project startup, the Permittee shall with the following requirements:

[A.A.C. R18-2-306.A.3.c]

(a) The Permittee shall calculate and record monthly particulate matter (PM, PM_{10} and $PM_{2.5}$) emissions from the tail gas stack by multiplying the average hourly emission rate from the two most recent performance test under Condition V.A.4.b by the number of hours of operation of the emissions units associated with the vent fume stack during the calendar month from Condition V.A.3.b(2)(b) below. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

(b) The Permittee shall maintain records of monthly hours of operation of the emissions units associated with the vent fume stack. If any emissions unit associated with the vent fume stack operates during a calendar hour, it will constitute an operating hour.

(c) The monthly emissions calculated and recorded pursuant to Condition V.A.3.b.2(a) above shall be used to demonstrate compliance with the emission limits in Condition II.B.2.a

c. Scrubber

For the scrubber subject to Condition V.A.2.c above, the Permittee shall monitor the hourly average water flow rate using a CPMS. The Permittee shall install, operate and maintain *each CPMS according to the following requirements*:

[40 CFR 63.1452(d), A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

(1) Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) Determine the hourly average of all recorded readings.

(3) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or a new sensor is installed.

(4) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(5) Record the results of each inspection, calibration, and validation check.

d. ESPs

The Permittee shall install, operate, and maintain *the continuous parameter monitoring system (CPMS) to monitor the power for the Wet Electrostatic Precipitators (WESP) according to the equipment manufacturer's specifications and the following requirements*:

[40 CFR 63.1452(d), A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

(1) Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) Determine the hourly average of all recorded readings.

(3) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or a new sensor is installed.

(4) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(5) Record the results of each inspection, calibration, and validation check.

4. Performance Testing Requirements

a. Until Project startup, if the stack flow exceeds 500,000 cfm in a rolling 12-month period, the Permittee shall conduct or cause to be conducted, a semi-annual performance test on the vent fume stack for Particulate

Matter (PM) to show compliance with the emission limits specified in Condition V.A.1.a and b. Arizona Method A1 shall be used to determine the emissions of PM.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

b. No later than 180 days from Project startup, the Permittee shall conduct or cause to be conducted, an initial performance tests on the vent fume stack for particulate matter emissions. Subsequent performance tests shall be conducted semiannually. EPA Reference Method 5 in 40 CFR 60 Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine the emissions of PM. All PM measured by the above reference method shall be considered to have an aerodynamic diameter less than 2.5 microns, or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM_{10} and $PM_{2.5}$.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

c. The Permittee shall conduct annual performance tests according to the following procedures to demonstrate compliance with emission standard in Condition V.A.1.c of this Attachment.

[40 CFR 63.1450(a) and 40 CFR 63.1453(a)(1)(ii)]

(1) Determine the concentration of total particulate matter according to the test methods in Appendix A to 40 CFR Part 60 as specified in paragraphs (a) through (e) below:

(a) Method 1 to select sampling port locations and the number of traverse points. Sampling ports shall be located at the outlet of the control device and prior to any releases to the atmosphere.

(b) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(c) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(d) Method 4 to determine the moisture content of the stack gas.

(e) Method 5, 5D, or 17, as applicable, to determine the concentration of total particulate matter. The Permittee can also use ASTM D4536-96 incorporated by reference in §63.14 as an alternative to the sampling equipment and operating procedures in Method 5 or 17 when testing a positive pressure baghouse, but the Permittee shall use the sample traverse location and number of sampling points described in Method 5D.

(2) As an alternative to using the applicable method specified in Condition V.A.4.c(1)(e) above, the Permittee may determine total particulate matter emissions from the control device using Method 29 in Appendix A of 40 CFR Part 60 of this chapter provided that the Permittee follows the procedures and

precautions prescribed in Method 29. If the control device is a positive pressure baghouse, the Permittee shall also follow the measurement specified in sections 4.1 through 4.3 of Method 5D.

(3) The Permittee shall conduct three separate test runs for each performance test. Each test run shall have a minimum sampling time of 60 minutes and a minimum sampling volume of 0.85 dscm. For the purpose of determining compliance with the applicable total particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

d. For the scrubber and ESPs subject to operating limitation under Condition V.A.2.c and d of this Attachment, the Permittee shall establish site-specific operating limit(s) for the operating parameters according to the following procedures:

[40 CFR 63.1450(a)(5)]

(1) Using the CPMS in Condition V.A.3.c and d, the Permittee shall measure and record the selected operating parameters for the scrubber and ESP during each run of the total particulate matter performance test.

(2) Compute and record the hourly average value for each of the selected operating parameters for each individual test run. The operating limits are the lowest value or the highest value, as appropriate for the selected operating parameter, measured in any of the three runs that meet the applicable emission limit.

(3) The Permittee shall prepare and keep records of written documentation to support the selection of the operating parameters used for the scrubber and ESPs. This documentation shall include a description of each selected parameter, a rationale for why the Permittee chose the parameter, a description of the method used to monitor the parameter, and the data recorded during the performance test and used to set the operating limit(s).

5. Continuous Compliance Demonstration

a. The Permittee shall demonstrate continuous compliance with the particulate matter emission limit in Condition V.A.1.c by maintaining the average concentration of total particulate matter in the gases discharged from the affected sources at or below the applicable emission limit, and by conducting performance tests no less frequently than once per year.

[40 CFR 63.1453(a)(1)]

b. The Permittee shall demonstrate continuous compliance for the scrubber and electrostatic precipitators by meeting the following requirements:

[40 CFR 63.1453(e)]

(1) Maintain the hourly average of the parameter(s) selected in Condition V.A.4.c and d within the levels established during the most recent performance test;

(2) Inspect and maintain each CPMS operated according to Condition V.A.4.c and d and record all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for selected parameters according to Condition I.C.6 of this Attachment and record all information needed to document conformance with these requirements.

6. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Conditions II.E of Att. B of Installation Permit #1232, A.A.C. R18-2-715.A, A.A.C. R18-2-715.D, 40 CFR 63.1444(b)(2)(i), 40 CFR 63.1444(b)(2)(ii), 40 CFR 63.1444(h), 40 CFR 63.1450(a)(1), 40 CFR 63.1450(a)(5), 40 CFR 63.1452(d), 40 CFR 63.1453(a)(1)(ii) and 40 CFR 63.1453(e).

[A.A.C. R18-2-325]

B. Sulfur Dioxide (SO_2)

1. Emission Limitations and Standards

a. *Until Project startup, the Permittee shall not exceed the emission limit for sulfur dioxide specified in Attachment "C" for the vent fume stack.*

[Condition II.E of Att B of Installation Permit #1232 & A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. Upon Project startup, the Permittee shall not cause to be discharged into the atmospheres from the vent fume stack any gases that contain sulfur dioxide in excess of 0.065 percent by volume.

[40 CFR 60.163(a)]

2. Air Pollution Control Requirements

a. *Until Project startup, the Permittee shall* maintain *and operate the chemical scrubber in a manner consistent with good air pollution control practice for minimizing SO_2 emissions.*

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3. e]
[Material permit conditions are identified by italics and underline]

b. *Upon Project startup, the Permittee shall install*, maintain and *operate the scrubber using caustic as the reagent in a manner consistent with good air pollution control practice for minimizing SO_2 emissions from the vent fume stack.*

[40 CFR 60.11(d)and A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are identified by italics and underline]

3. Monitoring, Recordkeeping and Reporting Requirements

a. *Until Project startup, the Permittee shall continue to operate Continuous Emission Monitoring Systems (CEMS) to monitor and record sulfur dioxide emissions from the vent fume stack.*

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

b. Upon Project startup, the Permittee shall comply with the following

requirements.

(1) *Except during periods of system breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall continue to operate a continuous emission monitoring system (CEMS) to monitor and record sulfur dioxide emissions from the vent fume stack. The span of this system shall be set at a sulfur dioxide concentration of 0.2 percent by volume*.

[40 CFR 60.13(e), 40 CFR 60.165(b)(2)]
[Material permit conditions are identified by italics and underline]

(2) Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system.

[40 CFR 60.165(c)]

(3) For reporting purposes, periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system, exceed the standard (0.065 percent by volume). The Director will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour period during the quarter as indicative of a potential violation of 60.11(d), provided the acid plant is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[40 CFR 60.165(d)(2)]

(4) SO_2 CEMS shall comply with the requirements for Continuous Monitoring Systems under Section X of this Attachment. SO_2 CEMS data shall be used to demonstrate compliance with the sulfur dioxide emission limits specified in Attachment "C" of the permit.

[A.A.C. R18-2-306.A.3.c]

(5) Utilizing SO_2 CEMS data recorded in accordance with Condition V.B.3.b(1), the Permittee shall calculate and record hourly SO_2 emissions from the vent fume stack for the purpose of demonstrating compliance with sulfur dioxide emission limits in Conditions II.B.1.a of this Attachment.

[A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Conditions II.E of Att. B of Installation Permit #1232, 40 CFR 60.163(a), 40 CFR 60.165(b)(2), 40 CFR 60.165(c) and 40 CFR 60.165(d)(2).

[A.A.C. R18-2-325]

C. Lead

1. Emissions Limitation and Standard

Until Project startup, the Permittee shall not exceed the emission limit for Lead specified in Attachment "C" for the vent fume stack.

[Condition II.F.2 of Att. B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Until Project startup, the Permittee shall comply with the following Conditions:

(1) At the end of every calendar month, the Permittee shall calculate monthly emissions of lead from the vent fume stack by multiplying the average hourly emission rate from the most recent performance test under Condition V.C.3.a by the number of hours of operation of the emissions units associated with the vent fume stack during the calendar month. The Permittee shall calculate rolling 12-month emissions (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

(2) The Permittee shall maintain records of the monthly and rolling 12-month (sum of the current month and prior eleven (11) most recent months) hours of operation of the emissions units associated with the vent fume stack.

[A.A.C. R18-2-306.A.3.c]

(3) The Permittee shall maintain records of the monthly and rolling 12-month lead emissions (sum of the current month and prior eleven (11) most recent months).

[A.A.C. R18-2-306.A.3.c]

b. No later than 180 days from Project startup, the Permittee shall with the following requirements:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record monthly lead emissions from the vent fume stack by multiplying the average hourly emission rate derived from the two most recent performance test under Condition V.C.3.b by the number of hours of operation of the emissions units associated with the vent fume stack during the calendar month from Condition V.C.2.b(2) below. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test

(2) The Permittee shall maintain records of monthly hours of operation of the emissions units associated with the vent fume stack. If any emissions unit associated with the vent fume stack operates during a calendar hour, it will constitute an operating hour.

(3) The monthly emissions calculated and recorded pursuant to

Condition V.C.2.b(1) above shall be used to demonstrate compliance with the emission limits in Condition II.B.3.a.

3. Performance Testing Requirements

a. Until Project startup, the Permittee shall conduct semi-annual performance tests on the vent fume stack for emissions of Lead using EPA Reference Method 29.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

b. No later than 180 days from Project startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the vent fume stack for lead emissions. Subsequent performance tests shall be conducted semiannually. EPA Reference Method 29 shall be used for determining lead emissions.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with Conditions II.F.2 of Att. B of Installation Permit #1232.

[A.A.C. R18-2-325]

VI. CAPTURED FUGITIVES FROM CONVERTERS AND ANODE FURNACES (Aisle Scrubber Stack)

A. The requirements under this Section shall become applicable upon Project startup.

B. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. The Permittee shall not cause, allow or permit the discharge of particulate matter from the aisle scrubber stack into the atmosphere in excess of the amounts calculated by one of the following equations:

[A.A.C. R18-2-715.A]

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.10P^{0.67}$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour of all materials introduced into a process source, including fuels, where these contribute to pollution generated by the source.

(2) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum

allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

Where "E" and "P" are defined as indicated in Condition VI.B.1.a(1) above.

b. The Permittee shall not cause to be discharged from the aisle scrubber stack, any visible emissions which exhibit greater than 20 percent opacity per EPA Reference Method 9.

[A.A.C. R18-2-702.B.3]

2. Air Pollution Control Requirements

a. *Upon Project startup, the Permittee shall* maintain and *operate the baghouse system associated with the anode furnaces in accordance with good air pollution control practices for minimizing particulate matter emissions*.

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

b. *Upon Project startup, the Permittee shall install, operate* and maintain *a capture system in accordance with good air pollution control practice to capture process fugitive emissions from anode furnaces.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

c. *Upon Project startup the Permittee shall install, operate* and maintain *a* capture *system in accordance with good air pollution control practice to capture process fugitive emissions in the converter aisle*.

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping, and Reporting Requirements

a. Opacity

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) survey of visible emissions from the aisle scrubber stack in accordance with Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

b. Anode Furnace Baghouse

(1) *The Permittee shall install, calibrate*, maintain, and continuously operate *a bag leak detection system (BLDS) at the exhaust of the anode furnace baghouse system in a manner consistent with the manufacturer's written specifications and recommendation, and in accordance with EPA's Fabric Filter Bag Leak Detection Guidance (EPA-454/R-98-015).*

[A.A.C. R18-2-306.A.3.c and -331.A.3.c]
[Material permit conditions are indicated by underline and italics]

(2) The calibration of the BLDS shall, at a minimum, consist of establishing the relative baseline output level by adjusting the

sensitivity and the averaging period of the device, and establishing the alarm set points and the alarm delay time..

c. Compliance Assurance Monitoring (CAM) Requirements for Anode Furnace Baghouse

(1) Primary Indicators

The alarm on the bag leak detection system shall be the primary indicator of the anode furnace performance.

(2) Monitoring Approach

(a) The bag leak detection system shall be equipped with an alarm system that will alert automatically whenever an event outside of the preset range is detected. The alarm shall be located where it is easily detected by plant operating personnel.

(b) In the event of zero signal reading during process operation, the Permittee shall conduct an investigation into the cause and shall take necessary corrective actions to restore normal operation and prevent the likely recurrence.

(3) Excursion Determination

(a) An excursion is defined as an alarm from the bag leak detection system.

(b) If an excursion is detected, then the Permittee shall initiate an investigation within 24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair to minimize possible exceedances of the particulate standard.

(c) The Permittee shall log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the monitoring systems in accordance with Section XIII, Attachment "A" of this permit. In the case of any excursion incident, the record shall include an identification of the date and time of all excursions, their cause, and an explanation of the corrective actions taken, if any.

[A.A.C. R18-2-306.A.3.c and 40 CFR §64.6]

(4) General CAM Operation Requirements

[40 CFR 64.7]

(a) At all times, the Permittee shall maintain the monitoring equipment, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(b) Upon detecting an excursion, the Permittee shall restore operation of the anode furnaces & the associated controls to normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion. Such actions may include initial inspection and evaluation, shutting down the affected compartment until the problem is repaired, recording that operations returned to normal without operator action (such as through response by a computerized distributed control system), or any necessary follow-up actions to return operation to within the indicator range.

(c) Determination of whether the Permittee has used acceptable procedures in response to an excursion will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.

(d) If the Permittee identifies a failure to achieve compliance with an emission limitation or standard for which CAM did not provide an indication of an excursion while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, then the Permittee shall promptly notify the Director and, if necessary, submit a proposed modification to the permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

(5) Quality Improvement Plan (QIP) Requirements

[40 CFR 64.8]

(a) In the event that the excursions exceed 5% duration of anode furnaces' operating time for a reporting period, the Permittee shall develop and implement a QIP. The Director may otherwise specify the threshold at a higher or lower number of excursions or rely on other criteria for purposes of indicating whether the anode furnaces & the associated controls are being maintained and operated in a manner consistent with good air pollution control practices.

(b) The QIP shall include the following elements:

(i) The Permittee shall maintain a written QIP, if required, and have it available for inspection. Within 30 days of development of the QIP, the Permittee shall notify the Department in writing. The notification shall identify the equipment for which the QIP was developed.

(ii) The plan initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the Permittee shall modify the plan to include procedures for conducting one or more of the following actions, as appropriate:

(a) Improved preventive maintenance practices;

(b) Process operation changes;

(c) Appropriate improvements to control methods;

(d) Other steps appropriate to correct control performance; and

(e) More frequent or improved monitoring (only in conjunction with one or more of steps (a) through (d)).

(iii) If required, pursuant to Condition VI.B.3.c(5)(a) of this Attachment, then the Permittee shall develop and implement a QIP as expeditiously as practicable and shall notify the Director if the period for completing the improvements contained in the QIP exceeds 180 days from the date on which the need to implement the QIP was determined.

(c) Following implementation of a QIP, the Director may require the Permittee to make reasonable changes to the QIP if the QIP is found to have:

(i) Failed to address the cause of the control device performance problems; or

(ii) Failed to provide adequate procedures for correcting control device performance problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

(d) Implementation of a QIP shall not excuse the Permittee from compliance with any existing emission limitation or standard, or any existing monitoring, testing,

reporting or recordkeeping requirement that may apply under federal, state or local law, or any other applicable requirements under the Act.

(6) Reporting and Recordkeeping Requirements

[40 CFR 64.9]

(a) Along with the compliance certifications required by Condition VII of Attachment "A", the Permittee shall submit to the Director monitoring reports required by this Section.

(b) A monitoring report under this Section shall include, at a minimum, the information required under Condition I.B of Attachment "B" of the permit, and the following information, as applicable:

(i) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions, and the corrective actions taken.

(ii) A description of the actions taken to implement a QIP during the reporting period as specified in Condition VI.B.3.c(5)(a) of this Attachment. Upon completion of a QIP, the Permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.

(iii) The Permittee shall maintain records of monitoring data, corrective actions taken, any written quality improvement plan required pursuant to Condition VI.B.3.c(5)(a) of this Attachment and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under this Section (such as data used to document the adequacy of monitoring, or records of monitoring, maintenance or corrective actions).

(iv) Instead of paper records, the Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.

d. Emissions monitoring for the Aisle Scrubber Stack

No later than 180 days from Project startup, the Permittee shall determine the monthly particulate matter emissions from the aisle scrubber stack in accordance with following:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record monthly particulate matter (PM, PM_{10} and $PM_{2.5}$) emissions from the aisle scrubber stack by multiplying the average hourly emission rate from the two most recent performance tests under Condition VI.B.4 by the number of hours of operation of the emissions units associated with the aisle scrubber stack during the calendar month from Condition VI.B.3.d(2) below. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

(2) The Permittee shall maintain records of monthly hours of operation of the emissions units associated with the aisle scrubber stack. If any emissions unit associated with the aisle scrubber operates during a calendar hour, it will constitute an operating hour.

(3) The monthly emissions calculated and recorded pursuant to Condition VI.B.3.d(1) above shall be used to demonstrate compliance with the emission limits in Condition II.B.2.a.

4. Performance Test Requirements

No later than 180 days from Project startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the aisle scrubber stack for particulate matter emissions. Subsequent performance tests shall be conducted semiannually. EPA Reference Method 5 in 40 CFR 60 Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M to determine the emissions of PM. All PM measured by the above reference method shall be considered to have an aerodynamic diameter less than 2.5 microns, or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM_{10} and $PM_{2.5}$.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

C. Sulfur Dioxide

1. Emission Limitations/Standards

The Permittee shall comply with the SO_2 emission limitations in Condition II.B.1.a.

[A.A.C. R18-2-306.01.A & A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Air Pollution Control Requirements

The Permittee shall install, maintain and *operate the aisle scrubber in accordance with good air pollution control practices for minimizing sulfur dioxide emissions*.

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3.d & e]
[Material permit conditions are identified by italics and underline]

3. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall install, calibrate*, operate and maintain *Continuous Emission Monitoring Systems (CEMS) to monitor and record sulfur dioxide emissions from the aisle scrubber stack.* SO_2 CEMS shall comply with the requirements for Continuous Monitoring Systems under Section X of this Attachment.

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

b. Utilizing SO_2 CEMS data in Condition VI.C.3.a, the Permittee shall calculate and record hourly SO_2 emissions from the aisle scrubber stack for the purpose of demonstrating compliance with sulfur dioxide emission limits in Conditions II.B.1.a of this Attachment.

[A.A.C. R18-2-306.A.3.c]

D. Lead

1. Emissions Limitation and Standard

The Permittee shall comply with the lead emission limitations in Condition II.B.3.a.

[A.A.C. R18-306.01.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping and Reporting Requirements

No later than 180 days from Project startup, the Permittee shall determine the monthly lead emissions from the aisle scrubber stack in accordance with following:

[A.A.C. R18-2-306.A.3.c]

a. The Permittee shall calculate and record the monthly lead emissions from the aisle scrubber stack by multiplying the average hourly emission rate derived from the two most recent performance tests under Condition VI.D.3 by the number of hours of operation of the emissions units associated with the aisle scrubber stack during the calendar month from Condition VI.D.2.b below. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

b. The Permittee shall maintain records of monthly hours of operation of the emissions units associated with the aisle scrubber stack. If any emissions unit associated with the aisle scrubber operates during a calendar hour, it will constitute an operating hour.

c. The monthly emissions calculated and recorded pursuant to Condition

VI.D.2.a above shall be used to demonstrate compliance with the emission limits in Condition II.B.3.a.

3. Performance Test Requirements

No later than 180 days from Project startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the aisle scrubber stack for lead emissions. Subsequent performance tests shall be conducted semiannually. EPA Reference Method 29 shall be used for determining lead emissions.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-715.A and A.A.C. R18-2-702.B.3.

[A.A.C. R18-2-325]

VII. BYPASS STACK

A. Sulfur Dioxide (SO_2)

1. Emission Limitations and Standards

Upon Project startup, the Permittee shall not exceed the sulfur dioxide emission limit of 75 tons per year from the bypass stack from planned bypass events on 365-day rolling sum basis.

[A.A.C. R18-2-306.01.A and A.A.C R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping and Reporting Requirements

a. *Upon Project startup, except during periods of system breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall calibrate*, maintain and operate *a Continuous Emission Monitoring Systems (CEMS) to monitor and record sulfur dioxide emissions from the bypass stack.* The SO_2 CEMS shall comply with the requirements for Continuous Monitoring Systems under Section X of this Attachment.

[A.A.C. R18-2-715.K, A.A.C R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

b. Utilizing SO_2 CEMS data in Condition VII.A.2.a, the Permittee shall calculate and record hourly SO_2 emissions from the bypass stack for the purpose of demonstrating compliance with sulfur dioxide emission limits in Conditions II.B.1.a of this Attachment.

[A.A.C. R18-2-306.A.3.c]

VIII. SMELTER FUGITIVES

A. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. Except as provided in Conditions VIII.A.1.a.(1) and (2), the Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent from the smelter building which exceeds 20% opacity as

measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B]

(1) The Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent from the smelter building during the periods of white metal transfer between converters which exceeds 39% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.E]

(2) The Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent during periods of matte additions to converter prior to first blow which exceeds 30% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.E]

b. The opacity of any visible emissions exiting the roof monitors on the building housing the copper converter department shall not exceed 4% as determined by a performance test conducted in accordance with Condition VIII.A.5 below. This opacity limit applies only at those times when a performance test is conducted according to Condition VIII.A.5 below. The requirements for compliance with opacity and visible emission standards specified in 40 CFR §63.6(h) do not apply to this opacity limit.

[40 CFR 63.1444(d)(4)]

2. Air Pollution Control Requirements

a. At all times when one or more batch converter is blowing, the Permittee shall operate the capture system to collect the process off gases vented from each batch copper converter according to the written operation and maintenance plan that has been prepared according to the requirements in Condition I.C.4.b of this Attachment.

[40 CFR 63.1444(d)(1)]

b. The capture system shall collect process off-gas vented during blowing through the side-flue intake on each converter vessel.

[40 CFR 63.1444(d)(3)]

c. *Upon installation, the Permittee shall, to the extent practicable,* maintain and *operate the retractable converter mouth covers on each converter, in a manner consistent with good air pollution control practices to reduce fugitive process gas emissions.*

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping, and Reporting Requirements

a. Bi-weekly monitoring for fugitive emissions

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the smelter building when in operation as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

b. Copper Converter Department Capture System Monitoring

For each operating limit established under the capture system operation and maintenance plan, the Permittee shall install, operate, and maintain an appropriate monitoring device according to the requirements in Conditions VIII.A.3.b(1) through (6) below to measure and record the operating limit value or setting at all times the copper converter department capture system is operating during batch copper converter blowing. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from these requirements.

[40 CFR 63.1452(a)]

(1) Install the monitoring device, associated sensor(s), and recording equipment according to the manufacturer's specifications. Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) If a flow measurement device is used to monitor the operating limit parameter, the Permittee shall meet the following:

(a) Locate the flow sensor and other necessary equipment such as straightening vanes in a position that provides a representative flow.

(b) Use a flow sensor with a minimum tolerance of 2 percent of the flow rate.

(c) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(d) Conduct a flow sensor calibration check at least semiannually.

(3) If a pressure measurement device is used to monitor the operating limit parameter, the Permittee shall meet the following requirements:

(a) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(b) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(c) Using a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(d) Check pressure tap pluggage daily.

(e) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(4) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or if a new sensor is installed.

(5) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(6) Record the results for each inspection, calibration, and validation check.

4. 40 CFR 63, Subpart QQQ Continuous Compliance Demonstration of the Copper Converter Department Capture Systems

[40 CFR 63.1453(b)]

The Permittee shall demonstrate continuous compliance of the copper converter department capture system by meeting the following requirements:

a. Operate the copper converter department capture system at all times during blowing within the values or setting established for the operating limits and demonstrated to achieve the opacity limit;

b. Inspect and maintain the copper converter department capture system according to the applicable requirements in Condition I.C.4.b of this Attachment, and record all information needed to document conformance with these requirements;

c. Monitor the copper converter department capture system according to the requirements in Condition VIII.A.3.b of this Attachment and collect, reduce, and record the monitoring data for each of the operating limit parameters; and

d. Conduct performance tests no less frequently than once per year to demonstrate that the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity. The performance test shall be performed as per the procedure in Condition VIII.A.5 below.

5. Performance Testing Requirements

The Permittee shall conduct each performance test to determine compliance with the opacity limit in Condition VIII.A.1.b of this Attachment using the following test methods and procedures:

[40 CFR 63.1450(c)]

a. The performance test shall be conducted during the period when the primary copper smelter is operating under conditions representative of the smelter's normal blister copper production rate. A performance test may not be conducted during periods of startup, shutdown, or malfunction. Before conducting the performance test, a written test plan shall be prepared specifying the copper production conditions to be maintained throughout the opacity observation period. This plan shall include a copy

of the written documentation prepared according to Condition I.C in Attachment "F" to support the established operating limits for the copper converter department capture system. A copy of the test plan shall be submitted for review and approval by the Director. During the observation period, the Permittee shall conduct appropriate process information and copper converter department capture system operating information to prepare documentation sufficient to verify that all opacity observations were made during the copper production and capture system operating conditions specified in the approved test plan.

b. The Permittee shall notify the Director before conducting the opacity observations to allow the Director the opportunity to have an authorized representative attend the test. Written notification of the location and scheduled date for conducting the opacity observation shall be received by the Director on or before 30 calendar days before the scheduled test date.

c. The Permittee shall gather the data needed for determining compliance with the opacity limit using qualified visible emission observers and process monitors as follows:

(1) Opacity observations shall be performed by a sufficient number of qualified visible emission observers to obtain two complete concurrent sets of opacity readings for the required observation period. Each visible emission observer shall be certified as a qualified observer by the procedure specified in Section 3 of Method 9 in Appendix "A" of 40 CFR 60. The entire set of readings during the required observation period does not need to be made by the same two observers. More than two observers may be used to allow for substitutions and provide for observer rest breaks. The Permittee shall obtain proof of current visible emission reading certification for each observer.

(2) A person (or persons) familiar with the copper production operations conducted at the smelter shall serve as the indoor process monitor. The indoor process monitor is stationed at a location inside the building housing the batch copper converters such that he or she can visually observe and record operations that occur in the batch copper converter aisle during the times that the visible emission observers are making opacity readings. More than one indoor process monitor may be used to allow for substitutions and provide for rest breaks.

d. The Permittee shall make all opacity observations using EPA Reference Method 9 and follow the procedures detailed below:

(1) Each visible emission observer shall make his or her readings at a position from the outside of the building that houses the copper converter department such that the observer's line-of-sight is approximately perpendicular to the longer axis of the converter building, and the observer has an unobstructed view of the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building. Opacity readings can only be made during those times when the observer's position meets the sun orientation and other

conditions specified in section 2.1 or Method 9.

(2) At 15-second intervals, each visible emission observer views the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building and reads the opacity of the visible plumes. If no plume is visible, the observer records zero as the opacity value for the 15-second interval. In situations when it is possible for an observer to distinguish two or more visible emission plumes from the building roof monitor sections or roof exhaust fan outlets, the observer shall identify, to the extent feasible, the plume having the highest opacity and record his or her opacity reading for the plume as the opacity value for the 15-second interval.

e. The Permittee shall make opacity observations for a period of sufficient duration to obtain a minimum of 120 1-minute intervals during which at least one copper converter is blowing and no interferences have occurred from other copper production events, as specified in Condition VIII.A.5.g of this Attachment, which generate visible emissions inside the building that potentially can interfere with the visible emissions from the converter capture systems as seen by the outside observers. To obtain the required number of 1-minute intervals, the observation period may be divided into two or more segments performed on the same day or on different days if conditions prevent the required number of opacity readings from being obtained during one continuous time period. Examples of these conditions include, but are not limited to, changes in the sun's orientation relative to visible emission observers' positions such that the Method 9 conditions are no longer met or weather conditions that interfere with the observers' ability to record acceptable opacity readings. If the total observation period is divided into two or more segments, all opacity observations shall be made during the same set of copper production conditions described in your approved test plan as required by Condition VIII.A.5.a of this Attachment.

f. The Permittee shall gather indoor process information during all times that the visible emission observers are making opacity readings outside the building housing the copper converter department. The indoor process monitor shall continually observe the operations occurring in the copper converter department and prepare a written record of his or her observations using the procedure specified below:

(1) At the beginning of each observation period or segment, the clock time setting on the watch or clock to be used by the indoor process monitor shall be synchronized with the clock time settings for the timepieces to be used by the outdoor opacity observers.

(2) During each period or segment when opacity readings are being made by the visible emission observers, the indoor process monitor shall continuously observe the operations occurring in the copper converter department and record his or her observations in a log book, on data sheets, or other type or

permanent written format.

(3) When a batch copper converter is blowing, a record shall be prepared for the converter that includes, but is not limited to, the clock times for when blowing begins and when blowing ends and the converter blowing rate. This information may be recorded by the indoor process monitor or by a separate, automated computer data system.

(4) The process monitor shall record each event other than converter blowing that occurs in or nearby the converter aisle that he or she observes to generate visible emissions inside the building. The recorded entry for each event shall include, but is not limited to, a description of the event and the clock times when the event begins and when the event ends.

g. The Permittee shall prepare a summary of the data for the entire observation period using the information recorded during the observation period by the outdoor visible emission observers and the indoor process monitor and the procedure specified below:

(1) Using the field data sheets, identify the 1-minute clock times for which a total of eight opacity readings were made and recorded by both observers at 15-second intervals according to the test procedures (i.e., a total of four opacity values have been recorded for the 1-minute interval by each of the two observers). Calculate the average of the eight 15-second interval readings recorded on the field data sheets by the two observers during the clock time minute interval (add the four consecutive 15-second interval opacity readings made by observer A during the specified clock time minute, plus the four consecutive 15-second interval opacity readings made by observer B during the same clock time minute, and divide the resulting total by eight). Record the clock time and the opacity average for the 1-minute interval on a data summary sheet.

(2) Using the data summary sheets prepared according to Condition VIII.A.5.g(1) above and the process information recorded according to Condition VIII.A.5.f(3) of this section, identify those 1-minute intervals for which at least one of the batch copper converters was blowing.

(3) Using the data summary sheet prepared according to Condition VIII.A.5.g(2) above and the process information recorded according to Condition VIII.A.5.f(4) of this Section, identify the 1-minute intervals during which at least one copper converter was blowing but none of the interference events listed in Condition VIII.A.5.g(3)(a) through (f) below occurred. Other ancillary activities not listed but conducted in or adjacent to the converter aisle during the opacity observations are not considered to be interference events (e.g., converter aisle cleaning, placement of smoking ladles or skulls on the converter aisle floor).

(a) Charging of copper matte, reverts, or other materials to a batch copper converter;

(b) Skimming slag or other molten materials from a batch copper converter;

(c) Pouring of blister copper or other molten materials from a batch copper converter;

(d) Return of slag or other molten materials to the smelting furnace or slag cleaning vessels;

(e) Roll-out or roll-in of the batch copper converter; or

(f) Smoke and fumes generated inside the converter building by operation of the smelting furnace, the slag cleaning vessel (if used), anode refining and casting processes that drift into the copper converter department.

(4) Using the data summary sheets prepared according to Condition VIII.A.5.g(3) above up to five 1-minute intervals following an interference event may be eliminated from data used for the compliance determination calculation specified in Condition VIII.A.5.h below by applying a time delay factor. The delay factor shall be a constant number of minutes not to exceed 5 minutes that is added to the clock time recorded when cessation of the interference event occurs. The same time delay factor shall be used for all interference events (i.e., a constant time delay factor for the smelter of 1 minute, 2 minutes, 3 minutes, 4 minutes, or 5 minutes). The number of minutes to be used for the time delay factor is determined based on the site-specific equipment and converter building configuration. An explanation of the rationale for selecting the value used for the time delay factor shall be prepared and included in the test report.

h. The Permittee shall use the date summary prepared in Condition VIII.A.5.g above to calculate the average opacity value for a minimum of 120 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to Conditions VIII.A.5.g(3) and (4) above. Average opacity is calculated using the equation below:

$$VE_{ave} = 1/n \sum_{i=1}^{n} VE_i$$

Where

VE_{ave} = Average opacity to be used for compliance determination (percent);

n = Total number of 1-minute intervals during which at least one copper converter was blowing with no interference events as determined

according to Conditions VIII.A.5.g(3) and (4) above (at least 120 1-minute intervals);

i = 1-minute interval "i" during which at least one copper converter was blowing with no interference events as determined according to Conditions VIII.A.5.g(3) and (4) above; and

VE_i = Average opacity value calculated for the eight opacity readings recorded during 1-minute interval "i" (percent).

i. The Permittee shall certify that the copper converter department capture system operated during the performance test at the operating limits established in the capture system operation and maintenance plan using the procedure specified below:

(1) Concurrent with all opacity observations, measure and record values for each of the operating limit parameters in the capture system operation and maintenance plan according to the monitoring requirements specified in Condition VIII.A.3.b of this Attachment.

(2) For any dampers that are manually set and remain in the same position at all times the capture system is operating, the damper position shall be visually checked and recorded at the beginning and end of each opacity observation period segment.

(3) Review the recorded monitoring data. Identify and explain any times during batch copper converter blowing when the capture system operated outside the applicable operating limits.

(4) Certify in the performance test report that during all observation period segments, the copper converter department capture system was operating at the values or settings established in the capture system operation and maintenance plan.

6. Smelter Roofline Fugitives Particulate Matter and Lead Emissions Monitoring

a. Roofline Emission Monitoring Protocol

(1) No less than 180 days prior to Project startup, the Permittee shall submit to the Director a protocol for monitoring particulate matter and lead emissions from the smelter roofline fugitives. The protocol shall contain the following methodologies:

(a) Methods for the collection of samples from the roofline vents

(b) Methods for the measurement of air flow through the vents

(c) Methods for the measurement of lead and particulate matter concentrations

(d) Methods for performance testing

(2) Upon Project startup, the Permittee shall monitor emissions of particulate matter from the smelter roofline fugitives in accordance with the approved protocol in Condition VIII.A.6.a(1) above.

[A.A.C. R18-2-306.A.3.c]

b. Roofline Particulate Emission Monitoring

No later than 180 days from Project startup, the Permittee shall determine the monthly particulate matter emissions from the smelter roofline fugitives in accordance with following:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record monthly particulate matter (PM, PM_{10} and $PM_{2.5}$) emissions from the roofline by multiplying the average hourly emission rate derived from the two most recent performance tests under Condition VIII.A.6.c by the number of hours of operation of the emission units associated with the roofline during the calendar month from Condition VIII.A.6.b(2) below. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

(2) The Permittee shall maintain records of monthly hours of operation when any of the emission units associated with the roofline are operational. .

(3) The monthly emissions calculated and recorded pursuant to Condition VIII.A.6.b(1) above shall be used to demonstrate compliance with the emission limits in Condition II.B.2.a

c. Performance Test Requirements

No later than 180 days from Project startup, the Permittee shall perform an initial performance test for particulate matter emissions from the roof line monitors. Subsequent performance tests shall be conducted semiannually. Permittee shall use a modified EPA Reference Method 14 for sample collection from the roofline monitors. EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 2.5 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of $PM_{2.5}$ and PM_{10}.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

7. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-702.B, A.A.C. R18-2-702.E, 40 CFR 63.1444(d)(1), (3) and (4), 40 CFR 63.1450(c), 40 CFR 63.1452(a), and 40 CFR 63.1453(b).

[A.A.C. R18-2-325]

B. Sulfur Dioxide

1. Emission Limitations/Standards

Until Project startup, the Permittee shall not exceed the overall emission limit for sulfur dioxide specified in Attachment "C" this Permit.

[Condition II.E of Att. B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. *Upon Project startup, the Permittee shall install, calibrate*, operate and maintain *a roofline monitoring system (RMS) to monitor and record the SO_2 fugitive emissions from the roof line.*

[A.A.C. R18-2-306.A.3.c, A.A.C R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

b. Not less than 180 days prior to Project startup, the Permittee shall submit to the Director a protocol for operation of smelter roofline SO2 monitoring system. The Protocol shall include following elements:

[A.A.C. R18-2-306.A.3.c]

(1) The RMS shall comprise the following four monitor systems:

(a) Converter system (directly venting to the atmosphere)

(b) Electric Furnace system

(c) Anode Plant system

(d) IsaSmelt® system

(2) Each monitor system shall include one sulfur dioxide analyzer and an appropriate number of sample probes that provide for the collection of a representative sample along the roof monitor for each monitor system. The number of sample probes and their locations for each monitoring system shall account for the physical configuration of the vent, the locations of emitting activities relative to the vent, and heat generated by the equipment served by the vent.

(3) Each monitor system shall include an appropriate number of flow sensors and temperature sensors to provide for the calculation of exhaust flows through each vent. The number of such sensors and their locations for each monitoring system shall account for the physical configuration of the vent, the locations of emitting activities relative to the vent, and heat generated by the equipment served by the vent.

(4) Each monitor system shall include an on-site data collection system that continuously logs and stores the measured sulfur dioxide concentration, the measured flow velocity, and the measured temperature.

(5) All sulfur dioxide analyzers shall have a daily zero-span check

performed by introducing zero gas and a known concentration of span gas to the analyzers. If the zero or span drift for any analyzer is greater than 5% for five consecutive days or greater than 10% for one day, the analyzer shall be found to be operating improperly and appropriate measures shall be taken to return the analyzer to proper operation.

(6) All SO_2 analyzers shall be internally inspected quarterly and inspected by an independent auditor annually. The inspection shall be conducted by providing two certified concentrations of sulfur dioxide to each sample probe system and comparing the known concentrations to the concentrations logged by the corresponding on-site data collection system to generate a relative error for each system.

(7) During periods of sulfur dioxide analyzer breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall calculate substitute data for that period according to the following procedures, provided that the affected department is operating (e.g. not in a maintenance turn-around):

(a) For a missing data period less than or equal to 24 hours, substitute the average of the hourly SO_2 concentrations recorded by the analyzer for the hour before and the hour after the missing data period.

(b) For a missing data period greater than 24 hours, substitute the greater of:

(i) The 90^{th} percentile hourly SO_2 concentrations recorded by the analyzer during the previous 720 quality-assured monitor operating hours; or

(ii) The average of the hourly SO_2 concentrations recorded by the analyzer for the hour before and the hour after the missing data period.

(8) The flow and temperature data shall be checked daily for proper operation of flow and temperature sensors. If a flow or temperature sensor is found to be operating improperly, appropriate measures shall be taken to return the sensor to proper operation.

(9) All temperature sensors shall be inspected annually. The inspection shall be conducted by inserting the temperature sensor into a water bath or equivalent of a known temperature and comparing the known temperature to the temperature logged by an on-site data collection system. If a temperature sensor is found to measure outside of a ±10 degrees Fahrenheit range of the known temperature, the sensor shall be found to be operating improperly and appropriate measures shall be taken to return the sensor to proper operation.

(10) All flow sensors shall be calibrated semi-annually with

calibration tools according to the manufacturer's specifications. If a flow sensor is found to measure outside of a ±10 percent range of the calibration tool, the sensor shall be found to be operating improperly and appropriate measures shall be taken to return the sensor to proper operation

c. Utilizing SO_2 roofline monitoring system data, the Permittee shall calculate and record hourly SO_2 emissions from the roof line for the purpose of demonstrating compliance with sulfur dioxide emission limits in Conditions II.B.1.a of this Attachment.

C. Lead

1. Emission Limitations/Standards

a. *Until Project startup, the Permittee shall not exceed the emission limit for lead specified in Attachment "C" for the smelter fugitives.*

[Condition II.F.2 of Att. B of Installation Permit #1232 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. The quantity of lead in the total feed to all smelting furnaces shall not exceed 3102 tons in any rolling twelve month period.

[A.A.C. R18-2-306.01 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Compliance with the feed limitations of lead in Condition VI.C.1.b above shall be determined by using the results of monthly tests of composite feed samples to calculate, on a monthly basis, the quantity of lead in the total feed to the furnaces. A 12-month rolling total shall be calculated at the end of each month.

[A.A.C. R18-2-306.A.3.c]

b. Upon Project startup, the Permittee shall monitor emissions of lead from the smelter roofline fugitives in accordance with the approved protocol in Condition VIII.A.6.a(1) of this Attachment.

[A.A.C. R18-2-306.A.3.c]

c. Roofline Lead Monitoring

No later than 180 days from Project startup, the Permittee shall determine the monthly lead from roofline in accordance with following:

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate and record monthly lead emissions from the roofline by multiplying the average hourly emission rate derived from the two most recent performance tests under Condition VIII.C.2.d by the number of hours of operation of the emission units associated with the roofline during the calendar month from Condition VIII.C.2.c(2) below. During the period when only the initial test data is available, the Permittee shall use the hourly emissions rate from the initial test.

(2) The Permittee shall maintain records of monthly hours of

operation when any of the emission units associated with the roofline are operational.

(3) The monthly lead emissions from Condition VIII.C.2.c(1) above shall be used to demonstrate compliance with the emission limits in Condition II.B.3.a

d. Performance Test Requirements

No later than 180 days from Project startup, the Permittee shall perform an initial performance test for lead emissions from the roof line monitors. Subsequent performance tests shall be conducted semiannually. Permittee shall use EPA Reference Method 14 for sample collection from the roofline monitors. EPA Reference Method 29 shall be used to determine emissions of lead.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Condition II.F.2 of Att. B of Installation Permit #1232.

[A.A.C. R18-2-325]

IX. FACILITYWIDE REQUIREMENTS (MULTI POINT ROLLBACK RULE)

A. General Provisions

1. Applicability

The requirements of this Section are applicable to the total of sulfur dioxide emissions from smelter processing units and sulfur dioxide control and removal equipment, but not to uncaptured fugitive emissions or emission due solely to the use of fuel for space heating or steam generation.

[A.A.C. R18-2-715.01.A]

2. Definitions

a. An "operating day", for the purpose of this section, means any day in which sulfur containing feed is introduced into the smelting process.

[A.A.C. R18-2-715.01(J)]

b. "Compliance period", for the purposes of this section, means the 365 calendar days immediately preceding the end of each day of the month being reported unless that period includes less than 300 operating days. In such case the number of days preceding the last day of the compliance period shall be increased until the compliance period contains 300 operating days.

[A.A.C. R18-2-715.01(J)]

B. Emission Limitations and Standards

1. Annual average SO_2 emissions from the stacks as calculated under Condition IX.C.4.a of this Attachment shall not exceed 604 pounds per hour.

[A.A.C. R18-2-715.F.2.a]

2. The number of three-hour average emissions as calculated under Condition IX.C.4.b of this Attachment shall not exceed n cumulative occurrences in excess of E, the emission level, shown below in any compliance period:

[A.A.C. R18-2-715.F.2.b]

Allowable SO_2 emissions profile

Occurrences, n	Emission Level, E (lbs/hr)	Occurrences, n	Emission Level, E (lbs/hr)
0	8678	180	1145
1	7158	245	1064
2	5903	330	1015
4	4575	435	968
7	4074	560	933
12	3479	710	896
20	3017	890	862
32	2573	1100	828
48	2111	1340	797
68	1703	1610	765
94	1461	1910	739
130	1274	2240	712

3. In addition to the limits in Conditions IX.B.1 and 2 above, the Permittee shall not discharge or cause the discharge of sulfur dioxide into the atmosphere from combined stack and fugitive emissions units in excess of the 2420 pounds per hour annual average calculated under R18-2-715.01(U).

[A.A.C. R18-2-715.H]

C. Monitoring, Recordkeeping and Reporting Requirements

1. Sulfur Balance

As a means of determining total overall emissions, the Permittee shall perform monthly material balances for sulfur in accordance with the procedures prescribed in the Attachment "D" of this permit.

[A.A.C. R18-2-715.01.O]

2. *For purposes of determining compliance with the cumulative occurrence and emission limits contained in Conditions IX..B.1 and 2 of this Attachment, the Permittee shall continue to calibrate*, maintain, and operate *a measurement system for continuously monitoring sulfur dioxide concentrations and stack gas volumetric flow rates of the following*:

[A.A.C. R18-2-715.01.K, K.1 and K.2, A.A.C. R-18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

a. *Acid Plant Tail Gas Stack*

b. *Vent Fume Stack*

c. *Aisle Scrubber Stack*

3. All the SO_2 CEMS and stack gas volumetric flow rate measurement systems shall comply with the requirements for continuous emission monitoring systems in Section X of this Attachment.

[A.A.C. R18-2-306.A.3.c]

4. For purposes of determining compliance with the cumulative occurrence and emission limits contained in Conditions IX.B.1 and 2 of this Section, the annual average emissions and three-hour emissions shall be determined as follows:

   a. The Permittee shall, at the end of each day, calculate annual average SO_2 emissions by averaging the SO_2 emissions for all hours measured during the compliance period ending on that day.

   [A.A.C. R18-2-715.01.C.1]

   b. The Permittee shall, at the end of each clock hour, calculate three-hour SO_2 emissions averages by averaging the hourly SO_2 emissions for the preceding three consecutive hours provided each such hour was measured in accordance with the requirements of Condition IX.C.2 above.

   [A.A.C. R18-2-715.01.C.2]

   c. The actual cumulative occurrence and emission level shall be determined using the sum total of sulfur dioxide emissions from the smelter processing units and sulfur dioxide control and removal equipment. The captured fugitive emissions shall be included as part of the total plant emissions, but not the uncaptured fugitive emissions and those emissions due solely to the use of fuel for space heating or steam generation.

   [A.A.C. R18-2-715.01.A and 715.01.K.2]

5. The Permittee shall determine compliance with the emission limit contained in Condition IX.B.3 as follows:

   a. The Permittee shall calculate annual average stack emissions at the end of the last day of each month by averaging the emissions for all hours measured during the previous 12-month period ending on that day according to the requirements contained in this Section.

   [A.A.C. R18-2-715.01.U.1]

   b. The Permittee shall calculate annual average fugitive emissions at the end of the last day of each month by averaging the monthly emissions for the previous 12-month period ending on that day. To determine monthly fugitive emissions, the Permittee shall perform material balances for sulfur according to the sulfur balance procedures prescribed Attachment "D" of this permit.

   [A.A.C. R18-2-715.01.U.2]

6. Periods of malfunction, startup, shutdown or other upset conditions shall be included in the determining compliance with the cumulative occurrence or annual average emission limits under Conditions IX.B.1, 2 and 3.

[A.A.C. R18-2-715.01.B]

7. Violation Determination

   For purposes of this section, the following scenarios shall be considered violations of the cumulative occurrence and/or emission limits contained in Conditions IX.B.1, 2 and 3 of this Section:

a. An annual emissions average in excess of the allowable annual average emission limit in Condition IX.B.1 of this Section shall be considered a violation if either:

(1) The annual average is larger than the annual average computed for the preceding day; or

[A.A.C. R18-2-715.01.C.1.a]

(2) The annual averages computed for the five preceding days all exceed the allowable annual average emission limit.

[A.A.C. R18-2-715.01.C.1.b]

b. A three-hour emissions average in excess of an emission level (E) will be considered to violate the associated cumulative occurrence limit (n) listed in Condition IX.B.2 of this Section if both:

(1) The number of all three-hour emissions averages measured during the compliance period in excess of that emission level exceeds the cumulative occurrence limit associated with the emission level; and

[A.A.C. R18-2-715.01.E.1]

(2) The average was measured during the last operating day of the compliance period being reported.

[A.A.C. R18-2-715.01.E.2]

c. A three-hour emissions average can only violate the cumulative occurrence limit (n) of an emission level (E) in the day containing the last hour in the average.

[A.A.C. R18-2-715.01.F]

d. Multiple violations of a cumulative occurrence limit in the same day and violations of different cumulative limits in the same day shall constitute a single violation.

[A.A.C. R18-2-715.01.G]

e. The violation of any cumulative occurrence limit and an annual average emission limit in the same day shall constitute only a single violation.

[A.A.C. R18-2-715.01.H]

f. Multiple violations of a cumulative occurrence limit by different three-hour emissions averages containing any common hour shall constitute a single violation.

[A.A.C. R18-2-715.01.I]

g. An annual emissions average in excess of the allowable annual average emission limit in Condition IX.B.3 shall be considered a violation if the total of the stack and fugitive annual averages computed at the end of each month exceeds the allowable annual average emission limit.

[A.A.C. R18-2-715.01.U.3]

8. Recordkeeping and Reporting Requirements

a. The Permittee shall maintain a record of all average hourly emissions measurements and calculated average monthly emissions required by this

Section.

[A.A.C. R18-2-715.01.P]

b. All of the following measurement results and calculated average monthly emissions shall be expressed as pounds per hour of sulfur dioxide and shall be summarized monthly and submitted to the Director within 20 days after the end of each month:

[A.A.C. R18-2-715.01.P]

(1) For all periods described in Condition IX.C.4 of this Section, the annual average emissions as calculated at the end of each day of the month;

(2) The total number of hourly periods during the month in which measurements were not taken and the reason for loss of measurement for each period;

(3) The number of three-hour emissions averages which exceeded each of the applicable emissions levels listed in Condition IX.B.2 for the compliance periods ending on each day of the month being reported;

(4) The date on which a cumulative occurrence limit listed in Condition IX.B.2 was exceeded if such exceedance occurred during the month being reported.

(5) For all periods described in Condition IX.C.5 of this Section, the annual average emissions as calculated at the end of the last day of each month.

c. Along with the monthly reports above, the Permittee shall submit the following reports:

[A.A.C. R18-2-306.A.5.a]

(1) Reports of sulfur dioxide emissions (stack and total) in tons per year for the preceding twelve months to demonstrate compliance with the limits specified in Attachment "C";

(2) Reports to demonstrate compliance with Condition I.C of Attachment "D";

(3) Reports of monthly sulfur balance broken down into the major process streams that constitute the sulfur balance;

(4) No later than 180 days from the Project startup, the Permittee shall submit aggregate reports of sulfur dioxide emissions (stack and total) in tons per year to demonstrate compliance with the limits specified in Conditions II.B.1.a and VII.A.1. During the initial twelve month period, the Permittee shall report running monthly total emissions after Project startup. Following the initial twelve month period, the Permittee shall report rolling 12-month total of sulfur dioxide emissions.

d. Bypass reporting requirements

At each point in the permitted smelter facility where a means exists to bypass the sulfur removal equipment, such bypass shall be instrumented and monitored to detect and record all periods that the bypass is in operation. The Permittee shall report to the Director, not later than the 15th day of each month, the information required to be recorded by this Section. Such report shall include an explanation for the necessity of the use of the bypass.

[A.A.C. R18-2-715.01.Q]

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-715.F.2, A.A.C. R18-2-715.H, A.A.C. R18-2-715.01.A, A.A.C. R18-2-715.01.B, A.A.C. R18-2-715.01.C, A.A.C. R18-2-715.01.E, A.A.C. R18-2-715.01.F, A.A.C. R18-2-715.01.G, A.A.C. R18-2-715.01.H, A.A.C. R18-2-715.01.I, A.A.C. R18-2-715.01.J, A.A.C. R18-2-715.01.K, A.A.C. R18-2-715.01.O, A.A.C. R18-2-715.01.P, A.A.C. R18-2-715.01.Q, and A.A.C. R18-2-715.01.U.

[A.A.C. R18-2-325]

X. GENERAL PROVISIONS FOR CONTINUOUS MONITORING SYSTEMS

A. General Requirements

1. *The SO_2 CEMS and NO_x CEMS shall meet 40 CFR Part 60, Appendix B, "Performance Specification 6 - Specifications and Test Procedures for SO2 and NOx Continuous Emission Monitoring Systems in Stationary Sources". The CEMS shall follow a quality assurance procedure equivalent to 40 CFR 60 Appendix F.*

[40 CFR 60.13(a), A.A.C. R18-2-715.01.K.5.a, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

2. All the stack gas volumetric flow rate monitoring systems shall meet 40 CFR Part 60, Appendix B, "Performance Specification 6 - Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources".

[A.A.C. R18-2-715.01.K.5.a and b]

3. *For the purpose of the SO_2 CEMS performance evaluation, the reference method for Relative Accuracy Test procedure under Performance Specification 2, Appendix B shall be Method 6. The pollutant gas for preparing calibration gas mixture and calibration checks shall be sulfur dioxide.*

[40 CFR 60.13(c), 40 CFR 60.165(b)(2)(ii), A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

4. *For the purpose of the NO_x CEMS performance evaluation, the reference method for Relative Accuracy Test procedure under Performance Specification 2, Appendix B shall be Method 7 and the pollutant gas for preparing calibration gas mixture and calibration checks shall be a mixture of nitrogen oxide and nitrogen dioxide.*

[40 CFR 60.13(c) and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

5. The Permittee shall notify the Director in writing at least 30 days in advance of

the start of relative accuracy test audit (RATA) procedures performed on the continuous monitoring systems.

[A.A.C. R18-2-715.01.K.5.c and A.A.C. R18-2-306.A.3.c]

6. Location change of all sampling points for monitoring SO_2 and NO_X concentrations and stack gas volumetric flow rates shall be approved in writing by the Director.

[A.A.C. R18-2-715.01.K.5.d and A.A.C. R18-2-306.A.3.c]

7. The measurement system installed and used is subject to the manufacturer's recommended zero adjustment and calibration procedures at least once per 24-hour operating period unless the manufacturer specifies or recommends calibration at shorter intervals, in which case specifications or recommendations shall be followed. The Permittee shall make available a record of these procedures that clearly shows instrument readings before and after zero adjustment and calibration.

[A.A.C. R18-2-715.01.K.5.e and A.A.C. R18-2-306.A.3.c]

8. The Permittee shall measure at least 95 percent of the hours during which SO_2 and NO_X emissions occurred in any month, using the continuous monitoring systems.

[A.A.C. R18-2-715.01.L and A.A.C. R18-2-306.A.3.c]

9. Failure to measure any 12 consecutive hours of emissions SO_2 and NO_X in accordance with the requirements in this Section shall constitute a violation.

[A.A.C. R18-2-715.01.M and A.A.C. R18-2-306.A.3.c]

10. The Permittee shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the SO_2 continuous monitoring equipment required by this subsection to allow for the replacement within six hours of any monitoring equipment part which fails or malfunctions during operation.

[A.A.C. R18-2-715.01.N]

11. The Permittee shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the NO_X continuous monitoring equipment required by this subsection to allow for the replacement within twenty-four hours of any monitoring equipment part which fails or malfunctions during operation If the Permittee, due to extenuating circumstances, is not able to locate the spare parts or duplicate systems for a monitoring equipment part which fails or malfunctions during operation within a twenty-four hour timeframe, the Permittee shall replace the monitoring equipment no later than 72 hours. If the Permittee is not able to replace the part or system within 72 hours, the Permittee shall request for an extension along with the justification for the same.

[A.A.C. R18-2-306A.2]

B. Calibration drift checks

1. The Permittee shall check the zero (or low-level value between 0 and 20% of span value) and span (50 to 100 percent of span value) calibration drifts (CD) at least once daily in accordance with a written procedure prescribed by the manufacturer.

[40 CFR 60.13(d)(1) and A.A.C. R18-2-306A.3.c]

2. Zero and span drift adjustments

[40 CFR 60.13(d)(1) and A.A.C. R18-2-306A.3.c]

a. The zero and span shall, as a minimum, be adjusted whenever the 24-hr zero drift or 24-hr span drift exceeds + 5% of the span value.

b. The CEMS shall allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified.

C. Minimum frequency of operation

1. Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the SO_2 and NO_X CEMS shall be in continuous operation.

[40 CFR 60.13(e)(2) and A.A.C. R18-2-306A.3.c]

2. For purposes of SO_2 and NO_X CEMS, continuous monitoring means the taking and recording of at least one measurement of sulfur dioxide concentration and stack gas flow rate reading from the effluent of each affected stack, outlet or other approved measurement location in each 15-minute period. Fifteen-minute periods start at the beginning of each clock hour, and run consecutively. An hour of smelter emissions is continuously monitored if the emissions from all monitored stacks, outlets, or other approved measurement locations are measured for at least 45 minutes of any hour.

[A.A.C. R18-2-715.01.K.4 and A.A.C. R18-2-306A.3.c]

3. If the Permittee can demonstrate to the Director that measurement of stack gas volumetric flow in the outlet of any particular piece of SO_2 or NO_X control equipment would yield inaccurate results or would be technologically infeasible, then the Director may allow measurement of the flow rate at an alternative sampling point.

[A.A.C. R18-2-715.01.K.3 and A.A.C. R18-2-306A.3.c]

D. Data reduction procedures

[40 CFR 60.13(h) and A.A.C. R18-2-306A.3.c]

1. The Permittee shall reduce all data from the CEMS to 1-hour averages. The 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period.

2. Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under the previous paragraph. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or non-reduced form.

3. During the periods of system breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall calculate substitute data for that period according to the following procedures:

a. For a missing data period less than or equal to 24 hours, substitute the average of the hourly SO_2 or NO_X concentrations recorded by the CEMS for the hour before and the hour after the missing data period.

b. For a missing data period greater than 24 hours, substitute the greater of:

(1) The 90th percentile hourly SO_2 or NO_X concentrations recorded by the CEMS during the previous 720 quality-assured monitor operating hours; or

(2) The average of the hourly SO_2 or NO_X concentrations recorded by the CEMS for the hour before and the hour after the missing data period

E. Recordkeeping and Reporting Requirements

1. The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility under this Section; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is in operative.

[40 CFR 60.7(b) and A.A.C. R18-2-306.A.3.c]

2. The Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this section recorded in a permanent form suitable for inspection. The file shall be retained for at least five years following the date of such measurements, maintenance, reports and records.

[40 CFR 60.7(f) and A.A.C. R18-2-306.A.4.b]

3. Quarterly SO_2 excess emissions and monitoring systems performance reports

a. The Permittee shall submit an excess emissions and monitoring systems performance (MSP) report and/or a summary report form to the Department for every calendar quarter, unless the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and the continuous monitoring system downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, in which case only the summary report form shall be submitted and the excess emissions report need not be submitted unless requested by the Department. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

[40 CFR 60.7(c) and (d)]

b. The summary report form submission required in the Condition X.E.3.a above shall be in the format specified in 40 CFR 60.7(d). Each excess emission and MSP report shall include the following information:

[40 CFR 60.7(c)]

(1) The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if

known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

4. Quarterly NO_x Emissions and Monitoring Systems Performance Reports
[A.A.C. R18-2-306.A.3.c]

a. The Permittee shall submit an Emissions and Monitoring Systems Performance (EMSP) report and/or a summary report form to the Department for every calendar quarter, unless the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and the continuous monitoring system downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, in which case only the summary report form shall be submitted and the excess emissions report need not be submitted unless requested by the Department. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

b. The summary report form submission required in the Condition X.E.4.a above shall be in the format similar to the one specified in 40 CFR 60.7(d). Each EMSP report shall include the following information:

(1) The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

F. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-715.01.K.3, A.A.C. R18-2-715.01.K.4, A.A.C. R18-2-715.01.K.5.a, A.A.C. R18-2-715.01.K.5.b, A.A.C. R18-2-715.01.K.5.c, A.A.C. R18-2-715.01.K.5.d, A.A.C. R18-2-715.01.K.5.e, A.A.C. R18-2-715.01.L, A.A.C. R18-2-715.01.M, and A.A.C. R18-2-715.01.N.

[A.A.C. R18-2-325]

XI. CONVERTER ARSENIC CHARGING RATE

A. Arsenic Charging Rate Determination

1. The Permittee shall determine the converter arsenic charging rate as follows:

[40 CFR 61.174(f)]

a. Collect daily grab samples of copper matte charged to the copper converters.

b. Each calendar month, from the daily grab samples collected, put together a composite copper matte sample. Analyze the composite sample individually using Method 108A, 108B, or 108C to determine the weight percent of inorganic arsenic contained in each sample.

c. Calculate the converter arsenic charging rate once per month using the following equation:

$$R_c = \sum (i=1 \text{ to } n) : \{\frac{(A_c \cdot W_{ci}) + (A_l \cdot W_{li})}{\{100\ H_c\}}\}$$

R_c= Converter arsenic charging rate (kg/hour or pounds/hour).

A_c= Monthly average weight percent of arsenic in the copper matte charged during the month (%) as determined under Condition XI.A.1.b above.

Ac= Monthly average weight percent of arsenic in the copper matte charged during the month (%)

Wci= Total weight of copper matte charged to a copper converter during the month (kg).

Hc= Total number of hours the copper converter department was in operation during the month (h).

n= Number of copper converters in operation during the month.

d. Determine an annual arsenic charging rate for the copper converter department once per month by computing the arithmetic average of the 12 monthly converter arsenic charging rate values (Rc) for the preceding 12-month period.

2. If the total arsenic charging rate for the copper converter department averaged

over a 1-year period is less than 75 kg/hr (165 lb/hr), the Permittee shall comply with the recordkeeping and reporting requirements in Condition XI.B below. If the charging rate is greater than 75 kg/hr (165 lb/hr), the Permittee shall comply with the additional requirements under 40 CFR 61.172(b) through (f), 40 CFR 61.173, 40 CFR 61.174(a) through (e), 40 CFR 61.175, 40 CFR 61.176(a) and (b), and 40 CFR 61.177(a) through (e).

[40 CFR 61.172(a)]

B. Recordkeeping and Reporting Requirements

1. The Permittee shall maintain at the source for a period of at least 2 years and make available to the Director upon request the following records:

   a. For each copper converter, a daily record of the amount of copper matte charged to the copper converter and the total hours of operation.

   [40 CFR 61.176(c)(1)]

   b. For each copper converter department, a monthly record of the weight percent of arsenic contained in the copper matte as determined under Condition XI.A.1 of this Section.

   [40 CFR 61.176(c)(2)]

   c. For each copper converter department, the monthly calculations of the average annual arsenic charging rate for the preceding 12-month period as determined under Condition XI.A.1 of this Section.

   [40 CFR 61.176(c)(3)]

2. The Permittee shall submit annually a written report to the Director that includes the monthly computations of the average annual converter arsenic charging rate as calculated under Condition XI.A.1.d of this Section. The annual report shall be postmarked by the 30th day following the end of each calendar year.

[40 CFR 61.177(f)]

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 61.172(a), 40 CFR 61.174(f), 40 CFR 61.176(c)(1), 40 CFR 61.176(c)(2), 40 CFR 61.176(c)(3), and 40 CFR 61.177(f)

[A.A.C. R18-2-325]

XII. ANODE FURNCES AND UTILITY VESSEL

A. Emission Limitations/Standards

Except as provided in Conditions XII.A.1 and 2 below, the Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent from the anode furnaces and utility vessel which exceeds 20% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B]

1. The Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent from the anode furnaces and utility vessel during periods when low blister copper is present which exceeds 33% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.E]

2. The Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent from the anode furnaces and utility vessel during periods when poling takes place in the anode vessel which exceeds 33% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.E]

B. Air Pollution Control Requirements

The Permittee shall maintain and operate the steam injection system associated with each of the anode furnaces and utility vessels to minimize particulate matter emissions when natural gas is being used for reducing.

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics underline]

C. Monitoring, Recordkeeping, and Reporting Requirements

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the anode furnaces and utility vessels building, when in operation, as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-702.B and A.A.C. R18-2-702.E.

[A.A.C. R18-2-325]

XIII. BOILERS/HEATERS IN SMELTER

A. IsaSmelt® Auxiliary Boiler

1. Fuel Limitation

a. The Permittee shall burn only natural gas in the IsaSmelt® auxiliary boiler.

[A.A.C.R18-2-306.A.2]

b. Monitoring, Recordkeeping and Reporting Requirements

(1) The Permittee shall maintain records of the amounts of fuel combusted during each calendar month.

[40 CFR §60.48c(g)(2)]

(2) All records of monthly fuel combusted shall be maintained by the Permittee for a period of two years following the date of such record.

[40 CFR §60.48c(i)]

c. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with the 40 CFR §60.48c(g) and (i).

[A.A.C. R18-2-325]

2. Nitrogen Oxides (NO_X)

a. Emission Limitations and Standards

The Permittee shall not discharge or cause to be discharged from the IsaSmelt® auxiliary boiler NO_X emissions in excess of 1.8 lb/hr.

[A.A.C. R18-2-406.A.4]

b. Performance Testing Requirements

The Permittee shall conduct or cause to be conducted, a performance test on the IsaSmelt® auxiliary boiler in the first year of the permit term for NO_X to demonstrate compliance with the emission limits specified in Condition XIII.A.2.a above. EPA Reference Method 7E shall be used to determine the emissions of NO_X.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

B. Change Room Water Heater and Acid Plant Preheater

1. Fuel Limitations

The Permittee shall only burn natural gas in the change room water heater and the acid plant preheater.

[A.A.C. R18-2-306.A.2]

2. Particulate Matter and Opacity

a. Emission Limitations and Standards

(1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by the combustion of fuel in the change room water heater and the acid plant preheater in excess of the amount calculated by the following equation:

[A.A.C. R18-2-724.C.1]

$$E = 1.02Q^{0.769}$$

Where:

E = the maximum allowable particulate emissions rate in pounds mass per hour.

Q = the heat input in million Btu per hour.

(2) The Permittee shall not cause, allow or permit to be emitted to the atmosphere from the change room water heater and the acid plant preheater any plume or effluent which exceeds 15% opacity.

[A.A.C. R18-2-724.J]

b. Monitoring, Reporting, and Recordkeeping Requirements

(1) A certified Method 9 observer shall conduct a monthly visual survey of visible emissions from the stacks of the change room water heater and the acid plant preheater as per the procedure in

Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

(2) The Permittee shall report all 6-minute periods during which the visible emissions from the change room water heater and the acid plant preheater exceeds 15% opacity.

[A.A.C. R18-2-724.J]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-724.C.1 and A.A.C.R18-2-724.J.

[A.A.C. R18-2-325]

XIV. SCREENING MACHINE

A. Applicability

This Section applies to the Screening Machine used for screening copper-containing material as well as non-copper containing material

B. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. The Permittee shall not cause, allow or permit the discharge of particulate matter into the atmosphere in any one hour from the Screening Machine subject to the provisions of this Section in total quantities in excess of the amounts calculated by one of the following equations:

[A.A.C.R18-2-721.B and A.A.C. R18-2-722.B]

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.10P^{0.67}$

where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

(2) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

Where E and P are defined as indicated in Condition XIV.B.1.a(1) above.

b. The opacity of any plume or effluent from any process source subject to the provisions of this Section shall not be greater than 20% as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B.3]

c. If the presence of uncombined water is the only reason for an exceedance of the visible emissions requirements in Condition XIV.B.1.b above, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

C. Air Pollution Control Requirements

1. The Permittee shall operate Spray bar pollution controls in accordance with "EPA Control of Air Emissions From Process Operations In The Rock Crushing Industry" (EPA 340/1-79-002), "Wet Suppression System" (pages 15-34, amended as of January 1979 (and no future amendments or editions)), as incorporated herein by reference and on file with the Office of the Secretary of State, with placement of spray bars and nozzles as required by the Director to minimize air pollution.

[A.A.C.R18-2-722.D]

2. The fugitive emissions from the screening plant shall be controlled in accordance with Section XXIII of this Attachment.

[A.A.C.R18-2-722.E]

D. Monitoring, Recordkeeping, and Reporting Requirements

1. A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions emanating from the screening machine, when in operation, as per the procedure in Condition I.D of this Attachment.

[A.A.C.R18-2-722.G]

2. The Permittee shall maintain a record of daily production rates of material processed by the Screening Machine.

[A.A.C.R18-2-722.G]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C.R18-2-721.B, A.A.C. R18-2-722.B, A.A.C. R18-2-702.B.3, A.A.C. R18-2-702.C, A.A.C.R18-2-722.D, A.A.C.R18-2-722.E and A.A.C.R18-2-722.G.

[A.A.C. R18-2-325]

XV. ELECTROLYTIC REFINERY OPERATIONS

A. Boiler

1. Fuel Limitation

The Permittee shall burn only natural gas in the boiler.

[A.A.C.R18-2-306.02]

2. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall maintain records of the amounts of fuel combusted

during each calendar month.

[40 CFR §60.48c(g)(2)]

b. All records monthly fuel combusted shall be maintained by the Permittee for a period of two years following the date of such record.

[40 CFR §60.48c(i)]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with the 40 CFR §60.48c(g) and (i).

[A.A.C. R18-2-325]

B. Electrolytic Refinery

1. Particulate Matter and Opacity

a. Emission Limitations and Standards

(1) The Permittee shall not cause, allow or permit the discharge of particulate matter from the stacks associated with the refinery into the atmosphere in excess of the amounts calculated by one of the following equations:

[A.A.C. R18-2-730.A.1]

(a) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E= 4.1P^{0.67}$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour

(b) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

Where "E" and "P" are defined as indicated in Condition XV.B.1.a(1)(a) above.

(2) Opacity

The Permittee shall not cause to be discharged into the atmosphere, any visible emissions from stacks associated with refinery which exhibit greater than 20 percent opacity.

[A.A.C. R18-2-702.B]

b. Air Pollution Control Requirements

The Permittee shall maintain and *operate the baghouse associated with the anode slimes dryer for minimizing emissions of particulate matter*.

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.d]
[Material permit conditions are identified by underline and italics]

c. Monitoring, Recordkeeping, and Reporting Requirements

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the stacks associated with refinery, when they are in operation, as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

d. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-702.B and A.A.C. R18-2-730.A.1.

[A.A.C. R18-2-325]

2. Sulfuric Acid Mist and Volatile Organic Compounds

a. Emission Limitations and Standards

(1) The Permittee shall not cause the emission of gaseous or odorous materials from equipment and operations associated with the refinery process in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

(2) Materials including solvents or other volatile compounds, acids, and alkalis utilized in the refinery process shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

(3) Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property.

[A.A.C. R18-2-730.G]

b. Air Pollution Control Requirements

(1) *The Permittee shall* maintain and *operate the demisters associated with the cathode stripping and washing area in the*

electrolytic refinery for minimizing emissions of sulfuric acid mist.

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.d]
[Material permit conditions are identified by underline and italics]

(2) *The Permittee shall* maintain and *operate the two scrubbers associated with the electrolyte circulation tanks and electrolyte decant/storage tanks in the electrolytic refinery for minimizing emissions of sulfuric acid mist.*

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.d]
[Material permit conditions are identified by underline and italics]

(3) *The Permittee shall* maintain and *operate the scrubber associated with the slimes autoclave in the electrolytic refinery for minimizing emissions of sulfuric acid mist*.

[A.A.C. R18-2-306.A.2 & A.A.C. R18-2-331.A.3.d]
[Material permit conditions are identified by underline and italics]

c. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall maintain a record of the control measures used at the refinery.

[A.A.C. R18-2-306.A.3.c]

d. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-730.D, F, and G.

[A.A.C. R18-2-325]

XVI. ROD PLANT

A. Thermal breaker Heater

1. Fuel Limitations

The Permittee shall only burn natural gas in the rod plant thermal breaker heater.

[A.A.C. R18-2-306.A.2]

2. Particulate Matter and Opacity

a. Emission Limitations/Standards

(1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by the combustion of fuel in excess of the amount calculated by the following equation:

[A.A.C. R18-2-724.C.1]

$E = 1.02\ Q^{0.769}$

Where:

E = the maximum allowable particulate emissions rate in pounds mass per hour.

Q = the heat input in million Btu per hour.

(2) The Permittee shall not cause, allow or permit to be emitted to the atmosphere from the rod plant thermal breaker heater any effluent which exceeds 15% opacity.

[A.A.C. R18-2-724.J]

b. Monitoring, Reporting, and Recordkeeping Requirements

(1) A certified Method 9 observer shall conduct a monthly visual survey of visible emissions from rod plant thermal breaker heater as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

(2) The Permittee shall report all 6-minute periods during which the visible emissions from any affected equipment exceeds 15% opacity.

[A.A.C. R18-2-724.J]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C.R18-2-724.C.1 and A.A.C.R18-2-724.J.

[A.A.C. R18-2-325]

B. Rod Plant Shaft Furnace

1. Fuel Limitations

The Permittee shall only burn natural gas as fuel in the rod plant shaft furnace.

[A.A.C. R18-2-306.A2]

2. Particulate Matter and Opacity

a. Emission Limitations and Standards

(1) The Permittee shall not cause, allow or permit the discharge of particulate matter from the rod plant shaft furnace into the atmosphere in excess of the amounts calculated by one of the following equations:

[A.A.C. R18-2-730.A.1]

(a) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E= 4.1P^{0.67}$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour

(b) For process sources having a process weight rate greater

than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

Where "E" and "P" are defined as indicated in Condition XVI.B.2.a(1)(a) above.

(2) The Permittee shall not cause to be discharged into the atmosphere, any visible emissions from the affected units which exhibit greater than 20 percent opacity.

[A.A.C. R18-2-702.B]

b. Monitoring, Recordkeeping, and Reporting Requirements

A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the rod plant shaft furnace, when in operation, as per the procedure in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-702.B and A.A.C. R18-2-730.A.1.

[A.A.C. R18-2-325]

3. Sulfur Dioxide

a. Emission Limitation and Standards

The Permittee shall not cause, allow, or permit the discharge of sulfur dioxide from the rod plant shaft furnace into the atmosphere in excess of 600 parts per million.

[A.A.C. R18-2-730.A.2]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.A.2.

[A.A.C. R18-2-325]

4. Nitrogen Oxides

a. Emission Limitations/Standards

The Permittee shall not cause, allow, or permit the discharge of nitrogen oxides from the rod plant shaft furnace into the atmosphere in excess of 500 parts per million.

[A.A.C. R18-2-730.A.3]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.A.3.

[A.A.C. R18-2-325]

5. Volatile Organic Compounds (VOCs)

a. Emission Limitations and Standards

(1) The Permittee shall not cause the emission of gaseous or odorous materials in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

(2) Materials including solvents or other volatile compounds, acids, and alkalis shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

(3) Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property.

[A.A.C. R18-2-730.G]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.D, A.A.C. R18-2-730.F, and A.A.C R18-2-730.G.

[A.A.C. R18-2-325]

XVII. MISCELLANEOUS STORAGE TANKS

A. Applicability

This Section is applicable to the following tanks at the facility:

1. Sulfuric acid tanks

2. Used oil tanks

3. Alcohol tanks

B. Emission Limitations/Standards

1. The Permittee shall not cause the emission of gaseous or odorous materials in

such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

2. Materials including solvents or other volatile compounds, acids, and alkalis shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

3. Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property.

[A.A.C. R18-2-730.G]

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-730.D, A.A.C. R18-2-730.F, and A.A.C R18-2-730.G.

[A.A.C. R18-2-325]

XVIII. GASOLINE STORAGE TANKS

A. Operating Limitations

1. Each gasoline storage tank shall be equipped with a submerged filling device or acceptable equivalent, for control of hydrocarbon emissions.

[A.A.C. R18-2-710.B]

2. All pumps and compressors that handle gasoline shall be equipped with mechanical seals or other equipment of equal efficiency to prevent release of organic contaminants into the atmosphere.

[A.A.C. R18-2-710.D]

B. Monitoring and Recordkeeping Requirements

1. The Permittee shall maintain a file, of the typical Reid vapor pressure of gasoline stored and of the dates of storage. Records of the dates on which any storage vessel is empty shall also be maintained.

[A.A.C. R18-2-710.E.1]

2. The Permittee shall record the average monthly temperature and true vapor pressure of gasoline at such temperature if the true vapor pressure is greater than 470 mm Hg (9.1 psia) and the gasoline is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent.

[A.A.C. R18-2-710.E.2.b]

3. The average monthly storage temperature shall be an arithmetic average calculated for each calendar month, or portion thereof, if storage is for less than a month, from bulk liquid storage temperatures determined at least once every

seven days.

[A.A.C. R18-2-710.E.3]

4. The true vapor pressure shall be determined by the procedures in American Petroleum Institute Bulletin 2517, amended as of February 1980 (and no future editions), which is incorporated herein by reference and on file with the Office of the Secretary of State. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the Director requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, the Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available upon request to the Director when typical Reid vapor pressure is used.

[A.A.C. R18-2-710.E.4]

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-710.B, A.A.C. R18-2-710.D, A.A.C. R18-2-710.E.1, A.A.C. R18-2-710.E.2.b, A.A.C. R18-2-710.E.3 and A.A.C. R18-2-710.E.4.

[A.A.C. R18-2-325]

XIX. ENGINES

A. Engines not Subject to New Source Performance Standard (NSPS) Requirements

1. Applicability

This Section applies to 63-hp Finlay screen engine

2. Fuel Limitations

The Permittee shall only fire diesel in the internal combustion engines.

[A.A.C. R18-2-306.A.2]

3. Particulate Matter and Opacity

a. Emissions Limitations and Standards

(1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any stationary rotating machinery into the atmosphere in excess of the amounts calculated by the following equation:

[A.A.C. R18-2-719.C.1]

$E = 1.02Q^{0.769}$

Where

E = the maximum allowable particulate emission rate in pounds-mass per hour

Q = the heat input in million Btu per hour

(2) The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than 10 consecutive seconds which exceeds 40% opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

[A.A.C. R18-2-719.E]

b. Monitoring, Reporting, and Recordkeeping Requirements

(1) The Permittee shall conduct a monthly monitoring of visible emissions from the engines when in operation as per the periodic opacity monitoring requirements specified in Condition I.D of this Attachment.

[A.A.C. R18-2-306.A.3.c]

(2) The Permittee shall keep records of fuel supplier certifications or other documentation containing information regarding lower heating value of the fuel. These records shall be made available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-719.I]

c. Permit Shield

Compliance with this Part shall be deemed compliance with A.A.C. R18-2-719.B, A.A.C. R18-2-719.C.1, A.A.C. R18-2-719.E, and A.A.C. R18-2-719.I.

[A.A.C. R18-2-325]

4. Sulfur Dioxide

a. Emission Limitations and Standards

(1) The Permittee shall not emit or cause to emit more than 1.0 pound of sulfur dioxide per million Btu heat input.

[A.A.C. R18-2-719.F]

(2) The Permittee shall not burn high sulfur diesel fuel (sulfur content greater than 0.9 % by weight) in the engine.

[A.A.C. R18-2-719.H]

b. Monitoring, Recordkeeping, and Reporting Requirements

(1) The Permittee shall keep records of fuel supplier certifications or other documentation to demonstrate compliance with the sulfur content limit specified in Condition XIX.A.4.a(2) above. The certification shall contain the sulfur content of the fuel. These records shall be made available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-719.I]

(2) The Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in the engine exceeds 0.8%.

[A.A.C. R18-2-719.J]

c. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-719.F, A.A.C. R18-2-719.H, A.A.C. R18-2-719.I, and A.A.C. R18-2-719.J.

[A.A.C. R18-2-325]

5. National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements

a. General Operating Limitations/Requirements

(1) At all times, the Permittee shall operate and maintain the engines, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator and the Director which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[40 CFR 63.6605(b)]

(2) The Permittee shall operate and maintain the engines and after control device, if any, in accordance with manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 63.6625(e)]

(3) The Permittee shall

(a) Change oil and filter every 1,000 hours of operation or annually, whichever comes first;

(b) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; and

(c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

[40 CFR §63.6602-Table 2c Item 2]

(4) The Permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirements in Conditions XIX.A.5.a(3)(a) above. The oil analysis shall be performed at the same frequency specified for changing the oil. The analysis program must at a minimum analyze total Base

Number, viscosity; and percent water content. The condemning limits for these parameters are as follows:

[40 CFR §63.6625(i)]

(a) Total Base Number is less than 30 percent of the Total Base Number of the oil when new;

(b) Viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or

(c) Percent water content (by volume) is greater than 0.5.

If all of the above limits are not exceeded, the Permittee is not required to change the oil. . If any of the limits are exceeded, the Permittee must change the oil within 2 days of receiving the results of the analysis, or before commencing operation, whichever is later. The analysis program shall be part of the maintenance plan for the engine.

(5) The Permittee shall minimize the engine's time at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

[40 CFR 63.6625(h)]

b. Compliance Demonstration

The Permittee shall demonstrate continuous compliance by operating and maintaining the engines according to the manufacturer's emission-related operation and maintenance instructions; or by developing and following own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 63.6640(a), 40 CFR 63 Subpart ZZZZ-Table 6, Item 9]

c. Reporting and Recordkeeping requirements

(1) The Permittee shall report each instance in which the Permittee did not meet each operating limitation in Condition XIX.A.5.a(3) of this Attachment. If a deviation from an operating limitation occurs during the reporting period, the following additional information shall be provided:

[40 CFR 63.6640(b), 40 CFR 63.6650 (d)]

(a) The total operating time of the engine at which the deviation occurred during the reporting period.

(b) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken

(2) The Permittee shall report all deviations from the applicable requirements of 40 CFR 63, Subpart ZZZZ in a Compliance Report along with the semiannual monitoring report required

pursuant to Condition I.B of this Attachment. If the Compliance report includes all required information concerning deviations from any emission or operating limitation in 40 CFR 63 Subpart ZZZZ, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. For the purpose of permit deviation reporting in Condition XII.B of Attachment "A", prompt reporting of deviations from applicable Subpart ZZZZ requirements shall mean that the Permittee report these deviations in the Compliance report along with the semiannual monitoring report required pursuant to Condition I.B. of this Attachment [40 CFR 63.6650 (f)]

(3) The Permittee shall keep records of the following:

(a) Records of the occurrence and duration of each malfunction of operation and monitoring equipment. [40 CFR 63.6655(a)(2)]

(b) Records of actions taken during periods of malfunction, including corrective actions to restore malfunctioning process and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.6655(a)(5)]

(c) Records required in Condition XIX.A.5.b above demonstrating continuous compliance with each operating limitation. [40 CFR 63.6655(d)]

(d) Records of the maintenance conducted on the engines in order to demonstrate that the facility operated and maintained the engine and after-treatment control device (if any) according to the Permittee's own maintenance plan. [40 CFR 63.6655(e)]

(e) Records of the parameters that are analyzed under the oil analysis program in Conditions XIX.A.5.a(4) of this Attachment, the results of the analysis, the oil changes for the engine, and replacement of hoses and belts. [40 CFR 63.6625(i)]

B. Compression Ignition (CI) Engines New Source Performance Standards (NSPS) Subpart IIII Requirements

1. Applicability

This Section applies to emergency and non-emergency Compression Ignition engines identified in Attachment "G" as subject to New Source Performance Standards (NSPS) Subpart IIII.

2. Operating Requirements for CI Engines

a. The Permittee shall

[40 CFR 60.4211 (a)]

(1) Operate the each engine and control device according to manufacturer's emission-related written instructions;

(2) Change only those emissions related settings that are permitted by the manufacturer; and

(3) Meet the requirements in 40 CFR 89, 94 and/or 1068, as applicable.

b. If any stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in 40 CFR 60.4204, the diesel particulate filter shall be installed with a backpressure monitor that notifies the Permittee when the high backpressure limit of the engine is approached.

[40 CFR 60.4211 (b)]

3. Additional Operating Requirements for Emergency CI Engines

a. The Permittee shall install a non-resettable hour meter prior to startup of the engine.

[A.A.C. R18-2-306.A.3 and -331.A.3.c]
[Material Permit Conditions are indicated by underline and italics]

b. An emergency ICE shall be limited to emergency situations and required testing and maintenance only such as to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or used to pump water in the case of fire or flood, etc. Stationary CI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity shall not be considered to be emergency engines.

[40 CFR 60.4219]

c. The Permittee shall operate the emergency stationary ICE according to the requirements in Conditions XIX.B.3.c(1) through XIX.B.3.c(3) of this Section. In order for the engine to be considered an emergency stationary ICE under, any operation other than emergency operation, maintenance response, and operation in non-emergency situations for 50 hours per year, as described in Conditions XIX.B.3.c(1) through XIX.B.3.c(3) of this section, is prohibited. If the emergency stationary ICE is not operated in accordance with the requirements in Conditions XIX.B.3.c(1) through XIX.B.3.c(3) of this Section, the engine will not be considered an emergency engine and must meet all requirements for non-emergency engines.

[40 CFR 60.4211(f)]

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

[40 CFR 60.4211(f)(1)]

(2) The Permittee may operate the emergency stationary ICE for any combination of the purposes specified in Conditions XIX.B.3.c(2)(a) through XIX.B.3.c(2)(c) of this Section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by Condition XIX.B.3.c(3) of this Section counts as part of the 100 hours per calendar year.

[40 CFR 60.4211(f)(2)]

(a) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, the regional transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator or Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond the 100 hours per year.

[40 CFR 60.4211(f)(2)(i)]

(b) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see 40 CFR 60.17), or other authorized entity as determined by the Reliability Coordinator has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

[40 CFR 60.4211(f)(2)(ii)]

(c) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequent of 5 percent or greater below standard voltage or frequency.

[40 CFR 60.4211(f)(2)(iii)]

(3) The Permittee may operate the emergency stationary ICE for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in Condition XIX.B.3.c(2). Except as provided in Condition XIX.B.3.c(3)(a), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid

or otherwise supply power as part of a financial arrangement with another entity.

[40 CFR 60.4211(f)(3)]

(a) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity of all of the following conditions are met:

[40 CFR 60.4211(f)(3)(i)]

(i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(iii) The dispatch follows reliability emergency operation or similar protocols that follow specific NERC regional, state, public utility commission, or local standards or guidelines.

(iv) The power is provided only to the facility or to support the local transmission and distribution system.

(v) The Permittee identifies and records the entity that dispatches the engine and the specific NERC, regional, state public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the Permittee.

4. Fuel Requirements

a. For CI ICE with a displacement of less than 30 liters per cylinder that use diesel fuel, the Permittee shall use diesel fuel that meets the following requirements for non-road diesel fuel.

[40 CFR 60.4207(b) 40 CFR 80.510(b)]

(1) Sulfur content - 15 ppm maximum

(2) Cetane index or aromatic content, as follows:

(a) A minimum cetane index of 40; or

(b) A maximum aromatic content of 35 volume percent

b. For CI ICE with a displacement of greater than or equal 30 liters per

cylinder, the Permittee must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

[40 CFR 60.4207(d)]

5. Emission Limitations and Standards

a. The Permittee operating a new or modified or reconstructed non-emergency CI ICE shall comply with the emission standards listed in the corresponding applicable regulations for the same model year and cylinder displacement as stated in 40 CFR 60.4204(a) through (e).

[40 CFR 60.4204]

b. The Permittee operating a new or modified or reconstructed emergency CI ICE shall comply with the emission standards listed in the corresponding applicable regulations for the same model year and cylinder displacement as stated in 40 CFR 60.4205(a) through (f).

[40 CFR 60.4205]

6. Compliance Requirements

a. Pre-2007 Model Year Engines

[40 CFR 60.4211 (b)]

The Permittee operating a pre-2007 model year stationary CI ICE or a CI fire pump manufactured prior to the model years in Table 3 of 40 CFR Part 60 Subpart IIII, shall demonstrate compliance according to one of the following methods:

(1) Purchasing an engine certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards

(4) Keeping records of control device vendor data indicating compliance with the standards

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in 40 CFR 60.4212, as applicable.

b. 2007 and later Year Stationary CI ICE

The Permittee operating a 2007 model year and later stationary CI ICE or a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in Table 3 of 40 CFR Part 60, Subpart IIII, shall comply by purchasing an engine certified to the emission standards in §60.4205(b) or (c), as applicable, for the same

model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications, except as permitted in Condition XIX.B.6.d.

[40 CFR 60.4211 (c)]

c. Modified or Reconstructed Stationary ICE

The Permittee operating a modified or reconstructed stationary CI ICE shall demonstrate compliance with the applicable standards using one of the following methods:

[40 CFR 60.4205(e) and 4211(e)]

(1) Purchasing an engine certified to the emission standards in 60.4205(f).

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in 60.4212. The test shall be conducted within 60 days after the engine commences operation after the modification or reconstruction. The in-use performance tests shall meet the NTE standards as indicated in 40 CFR 60.4212.

d. If the Permittee does not install, configure, operate, and maintain the CI ICE and control device according to the manufacturer's emission-related written instructions, or change the emission-related setting in a way that is not permitted by the manufacturer, the Permittee shall demonstrate compliance as following:

[40 CFR 60.4211(g)]

(1) CI ICE less than 100 HP

The Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) CI ICE greater than or equal to 100 HP and less than or equal to 500 HP

The Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after changing any non-permitted emission-related setting.

(3) CI ICE greater than 500 HP

The Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after changing any non-permitted emission-related setting on the engine. Subsequent tests shall be conducted every 8760 hours of engine operation or 3 years, whichever comes first.

7. Notification Requirements

a. For the non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, the Permittee shall meet the requirements of Condition XIX.B.7.a(1) and (2) below:

[40 CFR 60.4214(a)]

(1) Submit an initial notification as required in 40 CFR 60.7(a)(1). The notification shall include the following information:

[40 CFR 60.4214(a)(1)]

(a) Name and address of the Permittee;

(b) The address of the affected source;

(c) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(d) Emission control equipment; and

(e) Fuel used.

(2) Keep records of the following information.

[40 CFR 60.4214(a)(2)]

(a) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(b) Maintenance conducted on the engine

(c) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards

(d) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards

b. If the stationary CI internal combustion engine is an emergency stationary

internal combustion engine, the Permittee is not required to submit an initial notification.

[40 CFR 60.4214(b)]

8. Recordkeeping and Reporting Requirements

a. Starting with model years in Table 5 of 40 CFR 60 Subpart IIII, the Permittee operating an emergency ICE that does not meet the standards applicable to non-emergency engines in the applicable model year, shall keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The Permittee shall record the time of operation of the engine and the reason the engine was in operation during that time.

[40 CFR 60.4214(b)]

b. If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the Permittee shall keep records of any corrective action taken after the backpressure monitor has notified the Permittee that the high backpressure limit of the engine is approached.

[40 CFR 60.4214(c)]

c. The Permittee operating an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in XIX.B.3.c(3)(a), shall submit an annual report according to the requirements in Conditions XIX.B.8.c(1) through XIX.B.8.c(3) below:

[40 CFR 60.4214 (d)]

(1) The report shall contain the following information.

(a) Company name and address where the engine is located;

(b) Date of the report and beginning and ending dates of the reporting period;

(c) Engine site rating and model year;

(d) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place;

(e) Hours operated for the purposes specified in Conditions XIX.B.3.c(2)(a) and (b) including the date, start time, and end time for engine operation for the purposes specified in Conditions XIX.B.3.c(2)(a) and (b);

(f) Number of hours the engine is contractually obligated to be available for the purposes specified in Conditions XIX.B.3.c(2)(a) and (b); and

(g) Hours spent for operation for the purposes specified in Condition XIX.B.3.c(2)(a), including the date, start time, and end time for engine operation for the purposes specified in Condition XIX.B.3.c(2)(a). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report shall cover the calendar year 2015 and shall be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year shall be submitted no later than March 31 of the following calendar year.

(3) The annual report shall be submitted electronically using the 40 CFR 60 Subpart IIII specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in 40 CFR 60.4.

9. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4204, 40 CFR 60.4205 40 CFR 60.4207(b), 40 CFR 60.4207(d), 40 CFR 80.510(b), 40 CFR 60.4211(a), 40 CFR 60.4211(b), 40 CFR 60.4211(c), 40 CFR 60.4211(e), 40, CFR 60.4211(f). 40 CFR 60.4214(a), 40 CFR 60.4214(b), 40 CFR 60.4214(c), 40 CFR 60.4214(d), and 40 CFR 60.4219

[A.A.C. R18-2-325]

C. New Emergency Spark Ignition (SI) Engines subject to NSPS Subpart JJJJ

1. Applicability

This Section is applicable to each new emergency SI engine identified in Attachment "G" as subject to NSPS Subpart JJJJ.

2. Fuel Requirements

Gasoline Fuel Sulfur Limits

If the Permittee burns gasoline in the stationary emergency SI ICE, then that gasoline shall meet the per gallon sulfur limit of 80 parts per million (ppm) as stated in 40 CFR 80.195.

[40 CFR 60.4235]

3. Operating Requirements

a. The Permittee is prohibited from operating the emergency SI ICE for any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year.

[40 CFR 60.4243(d), A.A.C. R18-2-331.A.3.c]
[Material Permit Conditions are indicated by underline and italics]

b. The Permittee shall install a non-resettable hour meter prior to start-up of the engine.

[A.A.C. R18-2-306.A.3, A.A.C. R18-2-331.A.3.c, and 40 CFR 60.4237]
[Material Permit Conditions are indicated by underline and italics]

c. The Permittee shall operate the stationary emergency SI ICE according to the requirements in Conditions XIX.C.3.c(1) through (3) below.

[40 CFR 60.4243(d)]

(1) There is no time limit on the use of emergency stationary SI ICE in emergency situations.

[40 CFR 60.4243(d)(1)]

(2) The Permittee may operate the stationary emergency SI ICE for any combination of the purposes specified in Conditions XIX.C.3.c(2)(a) through (c) below for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by Condition XIX.C.3.c(3) counts as part of the 100 hours per calendar year.

[40 CFR 60.4243(d)(2)]

(a) Emergency stationary SI ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, the regional transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator or Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency SI ICE beyond the 100 hours per calendar year.

[40 CFR 60.4243(d)(2)(i)]

(b) Emergency stationary SI ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see 40 CFR 60.17), or other authorized entity as determined by the Reliability Coordinator has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

[40 CFR 60.4243(d)(2)(ii)]

(c) Emergency stationary SI ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

[40 CFR 60.4243(d)(2)(iii)]

(3) The Permittee may operate the emergency stationary SI ICE for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in Condition XIX.C.3.c(2) above. Except as provided

in Condition XIX.C.3.c(3)(a) below, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, to generate income for a facility to an electric grid, or otherwise supply power as part of a financial arrangement with another entity.

[40 CFR 60.4243(d)(3)]

(a) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

[40 CFR 60.4243(d)(3)(i)]

(i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

[40 CFR 60.4243(d)(3)(i)(A)]

(ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

[40 CFR 60.4243(d)(3)(i)(B)]

(iii) The dispatch follows reliability emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission, or local standards or guidelines.

[40 CFR 60.4243(d)(3)(i)(C)]

(iv) The power is provided only to the facility itself or to support the local transmission and distribution system.

[40 CFR 60.4243(d)(3)(i)(D)]

(v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR 60.4243(d)(3)(i)(E)]

d. The Permittee operating an emergency stationary natural gas fired SI ICE may operate the engine using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the Permittee shall conduct a performance test to demonstrate compliance with the emission standards of 40 CFR 60.4233.

[40 CFR 60.4243(e)]

e. The Permittee shall use air-to-fuel ratio controllers when operating a three-way catalysts/non-selective catalytic reduction. The air-to-fuel ratio controller shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

[40 CFR 60.4243(g)]

4. Emission Standards

a. The Permittee shall operate and maintain the stationary emergency SI ICE such that it complies with the emission standards listed in Condition XIX.C.4.b below over the entire life of the engine.

[40 CFR 60.4234]

b. The Permittee operating a stationary emergency SI ICE that commenced construction (date engine was ordered) or modified or reconstructed after June 12, 2006, and was manufactured on or after the date specified in the Table 1 below shall comply with the emission standards listed in the corresponding applicable standards.

[40 CFR 60.4233(d) and (f)]

Table 1: Emission Standards for Emergency SI ICE

Engine Rating	Manufacture Date	Applicable Regulation	
< 25 HP	On or After July 1, 2008	40 CFR 60.4231(a) [40 CFR 60.4233(a)]	
> 25 HP	On or After January 1, 2009	Gasoline Engines 40 CFR 60.4231(b) [40 CFR 60.4233(b)]	Rich Burn LPG Engines 40 CFR 60.4231(c) [40 CFR 60.4233(c)]
> 25 HP (excluding gasoline & rich burn LPG ICE)	On or After January 1, 2009	Emission Standards in Table 1 of 40 CFR Part 60 Subpart JJJJ [40 CFR 60.4233(d) and (e)]	
≥25 HP and <130 HP which are Modified or Reconstructed After June 12, 2006	On or After January 1, 2009	Emission Standards in Table 1 of 40 CFR Part 60 Subpart JJJJ [40 CFR 60.4233(d) and (e)]	

Engine Rating	Manufacture Date	Applicable Regulation		
		NO_x	**CO**	**VOC**
≥130 HP which are Modified or Reconstructed After June 12, 2006	Prior to January 1, 2009	3.0 g/HP-hour or 250 ppmvd @ 15% O_2 [40CFR 60.4233(f)]	4.0 g/HP-hr or 540 ppmvd @ 15% O_2 [40 CF60.4233(f)]	1.0 g/HP-hr or 86 ppmvd @ 15% O_2 [40 CF60.4233(f)]

5. Compliance Requirements

a. Emergency SI ICE Less Than 25 HP

(1) Certified SI ICE

The Permittee operating a stationary SI ICE manufactured after July 1, 2008 and subject to the emission standards specified in 40 CFR 60.4233(a), shall demonstrate compliance by purchasing an engine certified to the emission standards in 40 CFR 60.4231(a). In addition, the Permittee shall meet one of the requirements specified in Conditions XIX.C.5.a(1)(a) and (b) below:

[40 CFR 60.4243(a)]

(a) Operating per Manufacturer's Instructions

The Permittee shall operate and maintain the certified stationary SI ICE and control device according to the manufacturer's emission-related written instructions and shall keep records of conducted maintenance to demonstrate compliance. If engine settings are adjusted according to and consistent with the manufacturer's instructions, the stationary SI ICE will not be considered out of compliance.

[40 CFR 60.4243(a)(1)]

(b) Not Operating per Manufacturer's Instructions

If the Permittee does not operate and maintain the certified stationary SI ICE and control device in accordance with the manufacturer's emission-related written instructions, then the SI ICE will be considered a non-certified engine. The Permittee shall demonstrate compliance by keeping a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 60.4243(a)(2)(i)]

(2) Non-Certified SI ICE

The Permittee operating a non-certified stationary SI ICE shall perform an initial performance test per the testing requirements of 40 CFR 60.4244. If the stationary engine is rebuilt or undergoes major repair or maintenance, subsequent performance testing is required every 8,760 hours or 3 years, whichever comes first. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

[40 CFR 60.4243(f)]

b. Emergency SI ICE Greater Than 25 HP (Gasoline Engines and Rich Burn LPG Engines)

(1) Certified SI ICE

The Permittee operating a stationary SI ICE manufactured after July 1, 2008 and subject to the emission standards specified in 40 CFR 60.4233(b) or (c), shall demonstrate compliance by purchasing an engine certified to the emission standards in 40 CFR 60.4231(b) or (c), as applicable, for the same engine class and maximum engine power. In addition, the Permittee shall meet one of the requirements specified in Conditions XIX.C.5.b(1)(a) through (b) below:

[40 CFR 60.4243(h)]

(a) Operating per Manufacturer's Instructions

The Permittee shall operate and maintain the certified stationary SI ICE and control device according to the manufacturer's emission-related written instructions and shall keep records of conducted maintenance to demonstrate compliance. If engine settings are adjusted according to and consistent with the manufacturer's instructions, the stationary SI ICE will not be considered out of compliance.

[40 CFR 60.4243(a)(1)]

(b) Not Operating per Manufacturer's Instructions

If the Permittee does not operate and maintain the certified stationary SI ICE and control device in accordance with the manufacturer's emission-related written instructions, then the SI ICE will be considered a non-certified engine. The Permittee shall demonstrate compliance according to the Conditions XIX.C.5.b(1)(b)(i) through (iii) below:

[40 CFR 60.4243(a)(2)]

(i) SI ICE Less Than 100 HP (<100 HP)

The Permittee operating a stationary SI ICE less than 100 HP shall keep a maintenance plan and records of conducted maintenance to

demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 60.4243(a)(2)(i)]

(ii) SI ICE Greater Than or Equal to 100 HP and Less Than or Equal to 500 HP (Between 100 HP and 500 HP)

The Permittee operating a stationary SI ICE greater than or equal to 100 HP and less than or equal to 500 HP, shall keep maintenance records of the conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test per the testing requirements of 40 CFR 60.4244 within 1 year of engine startup to demonstrate compliance. If the stationary engine is rebuilt or undergoes major repair or maintenance, subsequent performance testing is required every 8,760 hours or 3 years, whichever comes first. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

[40 CFR 60.4243(a)(2)(ii) and (f)]

(iii) SI ICE Greater Than 500 HP (>500 HP)

The Permittee operating a stationary SI ICE greater than 500 HP, shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

[40 CFR 60.4243(a)(2)(iii)]

(2) Non-Certified SI ICE

(a) SI ICE Less Than or Equal to 500 HP (<500 HP)

The Permittee operating a non-certified stationary SI ICE that is less than or equal to 500 HP, shall perform an initial performance test per the testing requirements of 40 CFR 60.4244. If the stationary engine is rebuilt or

undergoes major repair or maintenance, subsequent performance testing is required every 8,760 hours or 3 years, whichever comes first. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

[40 CFR 60.4243(f)]

c. Emergency SI ICE Greater Than 25 HP (Excluding Gasoline and Rich Burn LPG Engines)

(1) Certified SI ICE

The Permittee operating a stationary SI ICE greater than 25 HP subject to the emission standards specified in 40 CFR 60.4233(d) or (e), shall demonstrate compliance according to one of the methods specified in Conditions XIX.C.5.c(1)(a) and (b) below:

[40 CFR 60.4243(b)]

(a) Operating per Manufacturer's Instructions

The Permittee shall operate and maintain the certified stationary SI ICE and control device according to the manufacturer's emission-related written instructions and shall keep records of conducted maintenance to demonstrate compliance. If engine settings are adjusted according to and consistent with the manufacturer's instructions, the stationary SI ICE will not be considered out of compliance.

[40 CFR 60.4243(a)(1)]

(b) Not Operating per Manufacturer's Instructions

If the Permittee does not operate and maintain the certified stationary SI ICE and control device in accordance with the manufacturer's emission-related written instructions, then the SI ICE will be considered a non-certified engine and the Permittee shall demonstrate compliance according to Conditions XIX.C.5.c(1)(b)(i) through (iii) below:

[40 CFR 60.4243(a)(2)]

(i) SI ICE Less Than 100 HP (<100 HP)

The Permittee operating a stationary SI ICE less than 100 HP shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 60.4243(a)(2)(i)]

(ii) SI ICE Greater than 100 HP and Less Than or Equal to 500 HP (Between 100 HP and 500 HP)

The Permittee operating a stationary SI ICE greater than or equal to 100 HP and less than or equal to 500 HP, shall keep maintenance records of the conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee must conduct an initial performance test per the testing requirements of 40 CFR 60.4244 within 1 year of engine startup to demonstrate compliance. If the stationary engine is rebuilt or undergoes major repair or maintenance, subsequent performance testing is required every 8,760 hours or 3 years, whichever comes first. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

[40 CFR 60.4243(a)(2)(ii) and (f)]

(iii) SI ICE Greater than 500 HP (>500 HP)

The Permittee operating a stationary SI ICE greater than 500 HP, shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

[40 CFR 60.4243(a)(2)(iii)]

(2) Non-Certified SI ICE

If the Permittee operates a non-certified engine, compliance with the emission standards specified in 40 CFR 60.4233(d) or (e) shall be demonstrated according to the testing requirements specified in 40 CFR 60.4244 and according to Conditions XIX.C.5.c(2)(a) and (b) below:

[40 CFR 60.4243(b)(2)]

(a) SI ICE Greater Than 25 HP and Less Than or Equal to 500 HP (Between 25 HP and 500 HP)

The Permittee operating a stationary SI ICE greater than 25 HP and less than or equal to 500 HP, shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for

minimizing emissions. In addition, the Permittee shall conduct an initial performance test per the testing requirements of 40 CFR 60.4244. If the stationary engine is rebuilt or undergoes major repair or maintenance, subsequent performance testing is required every 8,760 hours or 3 years, whichever comes first. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

[40 CFR 60.4243(b)(2)(i) and (f)]

(b) SI ICE Greater Than 500 HP (>500 HP)

The Permittee operating a certified stationary SI ICE greater than 500 HP, shall keep a maintenance plan and records of the conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test and conduct subsequent performance testing every 8,760 or 3 years, whichever comes first, thereafter to demonstrate compliance.

[40 CFR 60.4243(b)(2)(ii)]

d. Modified or Reconstructed Emergency SI ICE

(1) The Permittee operating a stationary SI ICE that is modified or reconstructed and complying with the emission standards specified in 40 CFR 60.4233(f), shall demonstrate compliance in accordance with Conditions XIX.C.5.d(1)(a) or (b) below. Any non-certified engine that demonstrates compliance with Condition XIX.C.5.d(1)(a) below demonstrates that the non-certified engine complies with the emission standards specified in 40 CFR 60.4233(f).

[40 CFR 60.4243(c) and (f)]

(a) SI ICE Greater Than 25 HP and Less Than or Equal to 500 HP (>25 HP and < 500 HP)

The Permittee operating a stationary SI ICE greater than 25 HP and less than or equal to 500 HP, shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee must conduct an initial performance test according to the testing requirements specified in 40 CFR 60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

[40 CFR 60.4243(b)(2)(i) and 40 CFR 60.4243(i)(2)]

(b) SI ICE Greater Than 500 HP (> 500 HP)

The Permittee operating a stationary SI ICE greater than 500 HP, shall keep a maintenance plan and records of the conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test according to the testing requirements specified in 40 CFR 60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction. In addition, the Permittee shall conduct subsequent performance testing every 8,760 or 3 years, whichever comes first, thereafter to demonstrate compliance.

[40 CFR 60.4243(b)(2)(ii) and 40 CFR 60.4243(i)(2)]

6. Recordkeeping and Reporting Requirements

a. The Permittee operating an emergency stationary SI ICE must meet the following recordkeeping requirements:

[40 CFR 60.4245(a)]

(1) Records of all notifications submitted to comply with this Section and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI ICE is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR Parts 90, 1048, 1054, and 1060, as applicable.

(4) If the stationary SI ICE is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

b. For all emergency stationary SI ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the Permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter.

[40 CFR 60.4245(b)]

c. For all emergency stationary SI ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the Permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter.

[40 CFR 60.4245(b)]

d. For all stationary SI emergency ICE greater than 25 HP and less than 130

HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the Permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The Permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

[40 CFR 60.4245(b)]

e. The Permittee operating a stationary SI ICE greater than or equal to 500 HP that has not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the following information:

[40 CFR 60.4245(c)]

(1) Name and address of the Permittee;

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

f. The Permittee operating an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in Condition XIX.C.3.c(2)(b) and (c), shall submit an annual report according to the requirements in Conditions XIX.C.6.f(1) through (3) below:

[40 CFR 60.4245(e)]

(1) The report must contain the following information.

(a) Company name and address where the engine is located;

(b) Date of the report and beginning and ending dates of the reporting period;

(c) Engine site rating and model year;

(d) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place;

(e) Hours operated for the purposes specified in Conditions XIX.D.3.c(2)(b) and (c) including the date, start time, and end time for engine operation for the purposes specified in Condition XIX.D.3.c(2)(b) and (c);

(f) Number of hours the engine is contractually obligated to be available for the purposes specified in Conditions

XIX.D.3.c(2)(b) and (c); and

[40 CFR 60.4245(e)(1)(vi)]

(g) Hours operated for the purposes specified in Condition XIX.D.3.c(3)(a), including the date, start time, and end time for engine operation for the purposes specified in Condition XIX.D.3.c(3)(a). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report shall cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

[40 CFR 60.4245(e)(2)]

(3) The annual report shall be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in 40 CFR 60.4.

[40 CFR 60.4245(e)(3)]

7. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4233, 40 CFR 60.4234, 40 CFR 60.4235, 40 CFR 60.4243, 40 CFR 60.4237, 40 CFR 60.4245.

[A.A.C. R18-2-325]

D. National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ Requirements for new Engines

New CI and SI emergency engines, and non emergency CI engines less than 500 HP shall comply with these requirements by complying with the requirements in Conditions XIX.B and XIX.C above.

[40 CFR 63.6590(c)]

XX. COOLING TOWERS

A. General Operational Requirements

1. The Permittee shall not emit gaseous or odorous materials from equipment, operations, or premises in such quantities or concentrations so as to cause air pollution.

[A.A.C. R18-2-730.D]

2. Where a stack, vent, or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent, or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce, or eliminate the discharge

of air pollution to adjoining property.

[A.A.C.R18-2-730.G]

B. Particulate Matter and Opacity

1. Emission Limitations/Standards

a. The Permittee shall not cause or permit the emissions of particulate matter discharged into the atmosphere in any one hour from cooling towers in total quantities in excess of the amounts calculated by one of the following equations:

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

[A.A.C. R18-2-730.A.1]

$E = 4.10P^{0.67}$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

(2) For process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55.0P^{0.11} - 40$

Where "E" and "P" are defined as indicated in (1) above.

b. The Permittee shall not cause or allow to be discharged into the atmosphere any plume or effluent from the cooling towers which exhibits opacity greater than 20%, measured in accordance with EPA Reference Method 9. Where the presence of uncombined water is the only reason for the exceedance of this opacity standard, such exceedance shall not constitute a violation.

[A.A.C. R18-2-702.B and -702.C]

2. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and *operate the cooling towers in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.*

[A.A.C. R18-2-306.A.2 and A.A.C. R18-2-331.A.3.e]
[Material Permit Condition are defined by double underline and italics]

3. Monitoring, Record keeping and Reporting Requirements

A certified Method 9 observer shall conduct a quarterly (once in 3 months) visual

survey of visible emissions from cooling towers as per the procedure in Condition I.D.2 of this Attachment.

[A.A.C. R18-2-306.A.3.c]

C. Permit Shield

Compliance with the conditions in this Section shall be deemed compliance with A.A.C.R18-2-730.D and A.A.C.R18-2-730.G.

[A.A.C. R18-2-325]

XXI. FUGITIVE DUST REQUIREMENTS

A. Applicability

This Section applies to any source of fugitive dust in the facility.

B. Particulate Matter and Opacity

Open Areas, Roadways & Streets, Storage Piles, and Material Handling

1. Emission Limitations/Standards

a. Opacity of emissions from any fugitive dust non-point source shall not be greater than 40% measured in accordance with the Arizona Testing Manual, Reference Method 9.

[A.A.C. R18-2-614]

b. The Permittee shall not cause, allow or permit visible emissions from any fugitive dust point source, in excess of 20% opacity.

[A.A.C. R18-2-702.B]

c. The Permittee shall employ the following reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne:

(1) Keep dust and other types of air contaminants to a minimum in an open area where construction operations, repair operations, demolition activities, clearing operations, leveling operations, or any earth moving or excavating activities are taking place, by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means;

[A.A.C. R18-2-604.A]

(2) Keep dust to a minimum from driveways, parking areas, and vacant lots where motor vehicular activity occurs by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means;

[A.A.C. R18-2-604.B]

(3) Keep dust and other particulates to a minimum by employing dust suppressants, temporary paving, detouring, wetting down or by other reasonable means when a roadway is repaired, constructed, or reconstructed;

[A.A.C. R18-2-605.A]

(4) Take reasonable precautions, such as wetting, applying dust suppressants, or covering the load when transporting material likely to give rise to airborne dust;

[A.A.C. R18-2-605.B]

(5) Take reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods when crushing, handling, or conveying material likely to give rise to airborne dust;

[A.A.C. R18-2-606]

(6) Take reasonable precautions such as chemical stabilization, wetting, or covering when organic or inorganic dust producing material is being stacked, piled, or otherwise stored;

[A.A.C. R18-2-607.A]

(7) Operate stacking and reclaiming machinery utilized at storage piles at all times with a minimum fall of material, or with the use of spray bars and wetting agents;

[A.A.C. R18-2-607.B]

(8) Operate mineral tailings piles by taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.

[A.A.C R18-2-608]

(9) Any other method as proposed by the Permittee and approved by the Director.

[A.A.C. R18-2-306.A.3.c]

2. Air Pollution Control Requirements

Haul Roads and Storage Piles

Water, or an equivalent control, including enclosure via tent or dome, shall be used to control visible emissions from haul roads and storage piles.

[A.A.C. R18-2-306.A.2 and -331.A.3.d]
[Material Permit Condition is indicated by underline and italics]

3. Monitoring and Recordkeeping Requirements

a. The Permittee shall maintain records of the dates on which any of the activities listed in Conditions XXI.B.1.c(1) through XXI.B.1.c(9) above were performed and the control measures that were adopted.

[A.A.C. R18-2-306.A.3.c]

b. Opacity Monitoring Requirements

The Permittee shall conduct a bi-weekly (once every two weeks) monitoring of visible emissions from the fugitive dust sources, when in operation, in accordance with the visual observation plan. The observation plan shall identify a central lookout station or multiple observation points, as appropriate, from where the fugitive dust sources shall be monitored. When multiple observation points are used, all the non point sources associated with each observation point shall be specifically identified within the observation plan. The observation shall be performed as per the periodic opacity monitoring requirements specified in Condition I.D.2 of this Attachment.

[A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-604.A, A.A.C. R18-2-604.B, A.A.C. R18-2-605, A.A.C. R18-2-606, A.A.C. R18-2-607, A.A.C. R18-2-608, A.A.C. R18-2-614 and A.A.C-R18-2-702.B.

[A.A.C. R18-2-325]

XXII. MOBILE SOURCE REQUIREMENTS

A. Applicability

The requirements of this Section are applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations. Mobile sources shall not include portable sources as defined in A.A.C. R18-2-101.90.

[A.A.C. R18-2-801.A]

B. Particulate Matter and Opacity

1. Emission Limitations/Standards

a. Off-Road Machinery

The Permittee shall not cause, allow, or permit to be emitted into the atmosphere from any off-road machinery, smoke for any period greater than ten consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes. Off-road machinery shall include trucks, graders, scrapers, rollers, and other construction and mining machinery not normally driven on a completed public roadway.

[A.A.C. R18-2-802.A and -802.B]

b. Roadway and Site Cleaning Machinery

(1) The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than ten consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this

requirement for the first ten minutes.

[A.A.C. R18-2-804.A]

(2) The Permittee shall take reasonable precautions, such as the use of dust suppressants, before the cleaning of a site, roadway, or alley. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

[A.A.C. R18-2-804.B]

c. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40%.

[A.A.C. R18-2-801.B]

2. Recordkeeping Requirement

The Permittee shall keep a record of all emissions related maintenance activities performed on the Permittee's mobile sources stationed at the facility as per manufacturer's specifications.

[A.A.C. R18-2-306.A.5.a]

3. Permit Shield

Compliance with this Section shall be deemed compliance with A.A.C. R18-2-801, A.A.C. R18-2-802.A, A.A.C. R18-2-804.A and A.A.C. R18-2-804.B.

[A.A.C. R18-2-325]

XXIII. OTHER PERIODIC ACTIVITIES

A. Abrasive Blasting

1. Particulate Matter and Opacity

a. Emission Limitations/Standards

The Permittee shall not cause or allow sandblasting or other abrasive blasting without minimizing dust emissions to the atmosphere through the use of good modern practices. Good modern practices include:

(1) Wet blasting;

(2) Effective enclosures with necessary dust collecting equipment; or

(3) Slag-based abrasive material; or

(4) Any other method approved by the Director.

[A.A.C. R18-2-726]

b. Opacity

The Permittee shall not cause, allow or permit visible emissions from sandblasting or other abrasive blasting operations in excess of 20% opacity, as measured by EPA Reference Method 9.

2. Monitoring and Recordkeeping Requirement

Each time an abrasive blasting project is conducted, the Permittee shall make a record of the following:

a. The date the project was conducted;

b. The duration of the project; and

c. Type of control measures employed.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with this Part shall be deemed compliance with A.A.C. R18-2-726 and A.A.C. R18-2-702.B.

[A.A.C.R18-2-325]

B. Use of Paints

1. Volatile Organic Compounds

a. Emission Limitations/Standards

While performing spray painting operations, the Permittee shall comply with the following requirements:

(1) The Permittee shall not conduct or cause to be conducted any spray painting operation without minimizing organic solvent emissions. Such operations, other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.

[A.A.C.R18-2-727.A]

(2) The Permittee or their designated contractor shall not either:

(a) Employ, apply, evaporate, or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or

(b) Thin or dilute any architectural coating with a photochemically reactive solvent.

[A.A.C.R18-2-727.B]

(3) For the purposes of Condition XXIII.B.1.a.(2), a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in Conditions XXIII.B.1.a.(3)(a) through XXIII.B.1.a.(3)(c) below, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

(a) A combination of the following types of compounds having an olefinic or cyclo-olefinic type of unsaturation-hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones: 5 percent.

(b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.

(c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

[A.A.C.R18-2-727.C]

(4) Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the groups of organic compounds described in Conditions XXIII.B.1.a.(3)(a) through XXIII.B.1.a.(3)(c) above, it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents.

[A.A.C.R18-2-727.D]

b. Monitoring and Recordkeeping Requirements

(1) Each time a spray painting project is conducted, the Permittee shall make a record of the following:

(a) The date the project was conducted;

(b) The duration of the project;

(c) Type of control measures employed;

(d) Material Safety Data Sheets for all paints and solvents used in the project; and

(e) The amount of paint consumed during the project.

(2) Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of Condition XXIII.B.1.b(1) above.

[A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with this Part shall be deemed compliance with A.A.C.R18-2-727.

[A.A.C.R18-2-325]

2. Opacity

a. Emission Limitation/Standard

The Permittee shall not cause, allow or permit visible emissions from painting operations in excess of 20% opacity, as measured by EPA

Reference Method 9.

[A.A.C. R18-2-702.B]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C.R18-2-702.B.

[A.A.C. R18-2-325]

C. Demolition/Renovation - Hazardous Air Pollutants

1. Emission Limitation/Standard

The Permittee shall comply with all of the requirements of 40 CFR 61 Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos).

[A.A.C. R18-2-1101.A.8]

2. Monitoring and Recordkeeping Requirement

The Permittee shall keep all required records in a file. The required records shall include the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-1101.A.8.

[A.A.C. R18-2-325]

D. Nonvehicle Air Conditioner Maintenance and/or Services

1. The Permittee shall comply with the applicable requirements of 40 CFR 82 - Subpart F (Protection of Stratospheric Ozone - Recycling and Emissions Reduction).

[40 CFR 82, Subpart F]

2. As a means of demonstrating compliance with Condition XXI.D.1 above, the Permittee shall keep a record of all relevant paperwork to the applicable requirements of 40 CFR 82 - Subpart F on file.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with 40 CFR 52, Subpart F.

[A.A.C. R18-2-325]

XXIV. AMBIENT MONITORING REQUIREMENTS

[A.A.C. R18-2-715.02.E, A.A.C. R18-2-306.A.2]

A. General Monitoring Requirements

1. Only those methods which have been either designated by EPA as reference or equivalent methods or approved by the Director shall be used to monitor ambient air.

   [A.A.C. R18-2-215.A]

2. Quality assurance, monitor siting, and sample probe installation procedures shall be in accordance with procedures described in the Appendices to 40 CFR 58.

   [A.A.C. R18-2-215.B]

3. The Director may approve other procedures upon a finding that the proposed procedures are substantially equivalent or superior to procedures in the Appendices to 40 CFR 58.

   [A.A.C. R18-2-215.C]

4. Unless otherwise specified, interpretation of all ambient air quality standards contained in this Section shall be in accordance with 40 CFR 50.

   [A.A.C. R18-2-216]

5. All ambient air quality monitoring shall be conducted in accordance with the regulations and guidance listed below as applicable:

   [A.A.C. R18-2-715.02.E]

   a. National Primary and Secondary Ambient Air Quality Standards, 40 CFR Part 50 and Appendices;

   b. Ambient Air Quality Surveillance, 40 CFR Part 58 and Appendices; and

   c. *Quality Assurance Handbook for Air Pollution Measurement Systems: "Volume I: A Field Guide to Environmental Quality Assurance",* EPA 600/R-94/038a, April 1994

   d. *Quality Assurance Handbook for Air Pollution Measurement Systems: "Volume II: Ambient Air Quality Monitoring Program",* EPA 454/B-08-003, December 2008

   e. *Meteorological Monitoring Guidance for Regulatory Modeling Applications*, EPA 454/R-99-005, February 2000

   f. *Quality Assurance Handbook for Air Pollution Measurement Systems: "Volume IV: Meteorological Measurement Version 2",* EPA 454/B-08-002, March 2008

6. The Permittee shall conduct performance audits of the monitoring equipment in accordance with the requirements pertaining to sampler accuracy as specified in 40 CFR Part 58. The performance audits shall be conducted by a qualified independent auditor at least once every six months for particulate samplers and at least annually for gas analyzers and meteorological equipment.

7. The Permittee shall participate in technical systems audits or performance audits conducted by the Department. The Department shall provide a minimum of 30

days notice of a technical systems audit and a minimum of 48 hours notice of a performance audit.

8. After the ADEQ monitors are installed and fully operational, and upon receiving written communication from ADEQ, the Permittee may discontinue submitting monitoring data from the Freeport-McMoRan Miami Inc. operated monitors.

B. General Reporting Requirements

1. The Permittee shall submit quarterly report summarizing the monitoring data measurements collected pursuant to this section before the 90th day of the following quarter. An annual report summarizing the quality assurance data for the calendar year shall be submitted before April 1st of the following year.

2. Summary statistics must be calculated in accordance with procedures in 40 CFR Part 50 and appendices.

3. Valid data recovery shall meet the EPA minimum data completeness requirement of 75 percent or the percentage specified in the applicable sections of 40 CFR Part 50 and appendices. Valid data are all observations collected for the specific monitoring purpose that have not been deemed invalid. Data collected during precision, audit, flow checks, and during servicing shall not be considered valid for data completeness purposes. For continuous analyzers there must be at least 18 or more valid hourly measurements per day to calculate a valid daily average for those pollutants requiring daily averaging. For filter-based (non-continuous) measurements, data completeness is based on quarterly data recovery.

4. All data submitted to ADEQ shall be reviewed, quality assured, and certified by the Permittee.

5. The sample data shall be submitted to ADEQ in electronic format. The required format is the Air Assessment Ambient Database (AAAD) format. The summary data may be reported electronically in CSV file or spreadsheet format. These data are to be submitted by CD or DVD; submittal of files via e-mail or file transfer protocol (FTP) requires prior approval by ADEQ.

6. AAAD parameter names and flags shall be used. The Permittee shall work with ADEQ assessment Section for approved AAAD format and flags. Adequate supporting information shall be provided to enable ADEQ to concur with the flags. In addition to any other reporting requirements specified in the permit, the ADEQ Air Assessment Section shall be notified within 30 days of any event that is expected to be or will be used as the basis for a flag requiring EPA concurrence (e.g., a 'natural or an exceptional event').

7. One electronic and one hard copy of the quarterly and annual reports shall be mailed to the Air Assessment Section and the report's cover letter without attachments shall be carbon copied to the Air Compliance Section of the Air Quality Division of the Department.

8. The quarterly reports must include the following information:

   a. Data summaries for each monitor or parameter based on EPA data rules

   b. Any field service activities including any maintenance and repair

performed

c. Identification of NAAQS exceedances

d. Data recovery statistics for each monitor or parameter;

e. CD or DVD containing the AAAD formatted data along with the electronic formatted QC data

f. Copies (either hard copies or scanned copies included on CD or DVD) of all appropriate supporting documentation, including, but not limited to:

(1) Copies of laboratory reports, if applicable;

(2) Copies of all applicable quality control and field reports (e.g., precision checks, flow checks, calibrations, and audit reports); and

(3) Documentation of problems and corrective actions, and explanations for discrepancies.

9. The annual summary report must include the following information:

a. Data summaries for each monitor or parameter based on EPA data rules;

b. Compliance statistics (e.g. most recent three-year design value) based on 40 CFR Part 50 and appendices or ADEQ permit specific metrics;

c. Identification of NAAQS exceedances

d. Data recovery statistics for each monitor or parameter;

e. QA/QC annual summary statistics as calculated in accordance with procedures in 40 CFR Part 58 Appendix A.

f. If any changes to previously submitted data, a discussion of the reason for the changes and a CD or DVD containing the updated AAAD formatted data along with the electronic formatted QC data.

C. Particulate Matter (PM)/Metals Monitoring-Specific Requirements

1. *The Permittee shall operate*, maintain, and *calibrate ambient PM_{10} sampling site located at the Miami Ridgeline.*

[A.A.C. R18-2-306.A.3.c, A.A.C. R18-2-331.A.3.c]
[Material Permit Condition indicated by underline and italics]

2. Should the ADEQ request relocation of monitoring site to alternate location, the monitors shall be operating at those locations within 120 days of receipt of written notification provided the Permittee can secure the necessary utilities and approvals.

3. Sample size to be measured:

0-10 microns

4. Sampling Frequency:

   The collection of PM samples with filter-based monitors shall follow the national EPA Monitoring Schedule posted on the EPA Ambient Monitoring Technology Information Center (AMTIC) website unless otherwise specified in the permit.

5. Sample Laboratory Analysis:

   Each sample in shall be weighed and concentrations calculated and reported as twenty-four hour average concentrations in µg/m3.

6. Reporting

   The Quarterly and Annual Summary Reports for each monitor must include:

   a. Date of each measurement

   b. Number of possible observations for the quarter;

   c. Number of actual valid observations for the quarter;

   d. Percent data completeness (number of actual valid observations divided by number of possible observations and multiplied by 100);

   e. Total PM_{10} mass concentration for each measurement

   f. Average PM_{10} concentration for the quarter calculated from valid 24-hour block daily averages

   g. Highest and second highest 24-hour concentration values for PM_{10} for the quarter with dates of occurrence

   h. Number of exceedances and number of expected exceedances, based on 40 CFR Part 50 Appendix K;

   i. Precision and accuracy data as per 40 CFR 58;

   j. Supporting documentation

   k. Each 24-hour sample value must be included in the report; each missing sample must have a missing value code (list provided by ADEQ) indicating the reason the sample is missing

   l. The results of laboratory analysis performed for the elemental mass concentrations required above.

   m. Copies of the original laboratory data from the speciation analysis of filter samples must be provided to ADEQ. This may include electronic data or hard-copy reports. In addition, lead results shall be provided in AAAD format.

D. Sulfur Dioxide Monitoring-Specific Requirements

1. *The Permittee shall* operate, maintain, and *calibrate an ambient monitoring network consisting of two continuous ambient sulfur dioxide monitors located at Townsite and Jones Ranch.*

[A.A.C. R18-2-715.E.02, A.A.C. R18-2-331.A.3.c]
[Material Permit Condition indicated by underline and italics]

2. All samplers shall be operated, calibrated, and maintained in accordance with the procedures set forth in the respective manufacturer's instruction manuals and in accordance with applicable sections and appendices of 40 CFR Parts 50 and 58 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, U.S. Environmental Protection Agency. The Permittee shall use EPA approved SO_2 samplers.

3. Reporting Requirements

   a. The Permittee shall provide an electronic file of the monitoring data from all sites in the Department's Data Collection System (DCS) format.

      These files shall contain the following:

      (1) Date and time of each measurement at each site;

      (2) The maximum 5-minute block average of SO_2 concentrations for each hour in parts per million (ppm) or parts per billion (ppb), or all twelve 5-minute block averages of SO_2 concentrations for each hour.

      (3) Hourly average values of SO_2 concentrations in ppm or ppb.

   b. The quarterly and annual reports shall also contain the following information, as appropriate. All concentration data must be presented in parts ppm or ppb.

      (1) Sample date, time, location and duration of sample time;

      (2) Individual sample data that include every sample scheduled to be collected during the reporting period or the reason why the sample is missing;

      (3) Hourly SO_2 concentration data in AAAD format quality assured and validated by the Permittee, including appropriate AAAD flags. These data should be made available on CD or DVD

      (4) Data summaries based on EPA data rules, including the following:

         (a) Valid hours of data expressed as the percentage obtained by dividing the actual monthly valid data hours by the number of hours in that month;

         (b) Average daily SO_2 concentration for the quarter calculated from valid daily averages (per 40 CFR 50.4);

(c) Maximum and second highest 3-hour block average concentration of SO_2 (per 40 CFR 50.5);

(d) Number of exceedances of the 1-hour, 24-hour or 3-hour standards;

(e) The Annual Report must include an annual average of 24-hour SO_2 quarterly averages (per 40 CFR 50.4), the annual 99^{th} percentile of the daily maximum 1-hour averages, and the most recent 3 year average of the annual 99^{th} percentiles;

(f) Precision and accuracy data as per 40 CFR 58.

c. In addition, to confirm data validation by the Permittee, all data reports should include copies of all appropriate supporting documentation including, but not limited to, the following:

(1) Copies of all applicable quality control and field reports (e.g., precision checks, flow checks, and calibrations, audit reports); and

(2) Documentation of problems and corrective actions, and explanations for discrepancies.

(3) Documentation of exceedance

d. All data submitted to the Director shall be reviewed, quality assured, and certified by the Permittee.

ATTACHMENT "C"- EMISSION LIMITS
AIR QUALITY CONTROL PERMIT NO. 53592
(AS REVISED BY SIGNIFICANT PERMIT REVISION PERMIT NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC

EMISSION SOURCES – MAXIMUM ALLOWABLE EMISSION RATES

Emission Point No.	Emission Source	Sulfur Dioxide		Particulate Matter		Lead	
		Pounds per hour	Tons per year	Pounds per hour	Tons per year	Pounds per hour	Tons per year
001	Acid Plant Tail Gas Stack	820.00	3515	20.40	87.67	0.10	0.44
002	Vent Fume Stack	312.00	1336	46.30**	198.70	24.80	105.30
003	Concentrate Bin Vent			0.08	0.32		
004	Concentrate Bin Vent			0.08	0.32		
005	Revert Bin			0.08	0.32		
006	Coal Bin			0.08	0.32		
007	Flux Bin			0.08	0.32		
	Fugitives *	1288	5517			10.38	44.45
	Totals	2420	10368				

* Fugitive emissions will not be subject to an individual emission limit. They will be regulated by the emission cap identified in the table.

** Alternatively, the Permittee must maintain a maximum 12-month rolling average stack flow rate of 500,000 scfm.

ATTACHMENT "D": SULFUR BALANCE METHODOLOGY
AIR QUALITY CONTROL PERMIT NO. 53592
(AS REVISED BY SIGNIFICANT PERMIT REVISION PERMIT NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC

PROCEDURES FOR UTILIZING THE SULFUR BALANCE METHOD FOR DETERMINING SULFUR EMISSIONS

I. DETERMINATION OF SULFUR EMISSIONS FOR THE SMELTER AS A WHOLE SHALL BE SUBJECT TO THE FOLLOWING CONDITIONS:

A. The emission sum shall apply to all process sulfur emitted into the ambient air from smelter processing units and sulfur control and removal equipment associated with the smelting process. The total monthly amount of sulfur emissions is equal to the weight of the total sulfur introduced into the smelting process in any calendar month minus the weight of all sulfur removed from the smelting process streams in that month in any physical form, plus or minus the weight of the sulfur contained in any month-month decrease or increase necessary to indicate materials in process. Removed sulfur shall include but not be limited to sulfur contained in slag, blister copper, sulfuric acid, liquefied sulfur dioxide, elemental sulfur, flue dust, precipitator dust, acid plant sludge, scrubber effluent and absorption plant purge. All unremoved sulfur, including fugitive sulfur emissions, shall be considered as emissions to the ambient air.

B. Material balances for sulfur described in I.A. above shall be obtained in accordance with the procedures listed in this Appendix which are equivalent to Appendix 8 to A.A.C. Title 18, Chapter 2.

C. Average daily emissions are to be determined by dividing the total monthly emissions by the number of operating days in the particular month.

II. CALCULATING INPUT SULFUR

Total sulfur input is the sum of the product of the weight of each sulfur bearing material introduced into the smelting process as calculated in A.1 below multiplied by the fraction of sulfur contained in that material as calculated in A.2 below plus the amount of sulfur contained in fuel utilized in the smelting process as calculated in A.3 below.

A. Material Weight

All sulfur bearing materials, other than fuels, introduced into the smelting process shall be weighed. Such weighing shall be subject to the following conditions:

1. Weight shall be determined on a belt scale, rail or truck scales, or other weighing device.

2. Weight shall be determined within an accuracy of ±5 percent.

3. All devices or scales used for weighing are to be calibrated to manufacturer's specifications. Scales will be calibrated at least quarterly. The weight of the railroad weight car shall be recorded following calibration of the railroad weight scale. Records of the quarterly truck scale calibrations and weekly railroad weight scale checks shall be retained and made available to regulatory personnel when requested.

4. Sulfur bearing materials subject to being weighed shall include but not be limited to concentrate, cement copper, reverts which are discarded and not part of the internal circulating load, and precipitates. Materials such as limestone and silica flux which are mixed with a charge of sulfur bearing materials shall be weighed and reported.

B. Sulfur Content

The sulfur content of all sulfur bearing materials introduced into the smelting process shall be calculated using the following steps:

1. Sampling – The procedure to be followed in sampling is dependent upon the input vehicles for the sulfur bearing material.

   a. Railcar – The smelter operator shall collect a sample using the auger method. Two holes per car will be taken and combined with the total sample not exceeding 20 pounds. Ten cars or less from the same source will be combined into one lot.

   b. Truck – The smelter operator shall collect a sample using the auger method. Samples are to be taken from at least two points using the auger method and shall be representative of the contents of the truck. Shipments from other Freeport McMoRan mines may be sampled at the mine site provided each truckload is sampled. Samples will be combined at Miami into lots from trucks delivering material from the same source. For fluxes from Freeport McMoRan controlled mines, one truckload per day will be sampled.

2. Sample Preparation – Each total sample shall be prepared for analysis in the following manner:

   a. If necessary, the sample shall be crushed to minus quarter inch particles.

   b. Each sample is to be thoroughly blended in a roto-cone blender or similar device.

   c. A blended composite sample is to be prepared based on individual sample weight and moisture. Material to be used in the composite sample is to be cut with a sample scoop or knife and used to make a 2400 gram composite sample for each lot.

   d. Each composite sample is to be dried and then pulverized to minus 80 mesh using a roto-disc pulverizer or similar equipment and then blended in a roto-cone blender or similar equipment.

   e. A 200 gram portion is to be cut from the composite sample for analysis.

3. Sample Analysis.

   a. The sample shall be analyzed to determine sulfur content using any of the following methods:

      (1) X-ray Fluorescence Spectroscopy (XRF). The XRF shall be calibrated using the Empirical Calibration method discussed in

SW846 Method 6200 Section 10.3.

(2) Inductively Coupled Plasma Spectroscopy (ICP)

(3) Barium sulfate gravimetric test method (provided in Standard Methods of Chemical analysis, Volume One, The Elements, sixth edition, N. Howell Furman (ed.), D. Van Nostrand Company, Princeton, new Jersey, 1962, pages 410-411, 1006-1011, and 1342-1343 and no future editions or amendments).

b. The accuracy of sulfur analysis shall be within a range of ±1 percent

4. Sulfur Determination

The sulfur content of all feed material treated per month will be determined by month end physical inventories in conjunction with certified scales for bed contents. Physical inventory determines beginning and ending bed for each month and all beds processed during the month, together with inventory changes for secondaries. Based upon individual lot numbers for each material processed (i.e. concentrates, reverts, purchased secondaries, Resource Recycling material, and fluxes) the composite analysis will be used to determine sulfur input.

C. Fuel Sulfur Content

Sulfur in fuels shall be calculated by multiplying the amount of fuel delivered to the process by the fraction of sulfur in the fuel as reported to the smelter operator by the fuel's supplier. The sulfur content determination shall be accurate to within ±5 percent. The sulfur content of "pipeline quality natural gas" meeting the definition in 40 CFR 72.2 does not have to be accounted for due to its low concentration. The Permittee shall maintain documentation of the total sulfur content of the natural gas from its supplier. The sulfur content of other fuels, such as coal or diesel fuel shall continue to be determined as required by this paragraph.

III. CALCULATING REMOVED SULFUR

Total removed sulfur is the sum of the sulfur removed in each of the following products as determined by each process set forth below.

A. Electric Furnace Slags

1. The weight of the slag shall be determined using a count of furnace slag ladles. The weight used for slag in slag ladles will be checked on a semi-annual basis by taking samples from 5 ladles determining the average density of the slag using a method which has an accuracy within 5%.

2. Each slag pot will be sampled and a portion of each crushed sample will be used to form a monthly composite sample which will be analyzed for sulfur using ICP.

B. Scrubber Sludge

1. For sludge that is collected (as a slurry), clarified, and filtered before transportation to a solar drying pad as a sludge, a truck payload weight will be determined. The sludge will be sampled each time a truck is filled. The sample will be prepared and analyzed for sulfur using the procedures in II.B.2 and II.B.3

of this Attachment.

2. If sludge is to be recycled back to the smelter, the sludge will be sampled each time a truck is filled. The sample will be prepared and analyzed for sulfur using the procedures in II.B.2 and II.B.3 of this Attachment.

C. Strong Acids

1. The daily production of acid shall be determined by using either a flowmeter which measures all acid added to the storage tanks from which trucks or rail cars are loaded, or a daily inventory increased by the amounts of acid shipped or otherwise transferred during that day.

2. The meter reading or daily inventory will be accurate to within ±5 percent.

3. Strong acid samples will be analyzed for sulfuric acid using specific gravity methods corrected for temperature. Sulfuric acid analyses will be converted to grams per liter of sulfur.

4. The acid stream will be sampled twice per shift and specific gravity will be measured by hydrometer in accordance with Freeport McMoRan SOP-45-0012 to check sensor accuracy. If the sensor reading differs from the hydrometer reading by more than 5%, the instrument will be recalibrated if possible or replaced.

5. All flow meters, density gauges, sonic sensors, pressure sensors, etc., used in determining the sulfur balance will be calibrated according to manufacturer's specifications at least quarterly.

D. Weak Acids

1. The amount of weak acid discharged from the acid plant and scrubber systems is to be determined through flow meters.

2. Flow meters will be calibrated as in C.5 above. The accuracy is to be within +/- 20%.

3. A 100 ml sample of weak acid shall be collected and analyzed daily for sulfur content using Inductively Coupled Plasma Spectroscopy or the Barium Sulfate Gravimetric Method specified in A.A.C. R18-2 Appendix 8.

E. Materials in Process

1. Total tonnage of materials in process shall be determined by physical inventory on the first day of each month.

2. A monthly change of in-process inventory shall be calculated for each material in process by taking the difference between the inventories from each material in process on the first day of the preceding month and multiplying that difference by the monthly composite sulfur assay for that material.

3. The change of monthly in-process inventory must be accurate to within ±50 percent.

ATTACHMENT "E": FUGITIVE DUST CONTROL PLAN
AIR QUALITY CONTROL PERMIT NO. 53592
(AS REVISED BY SIGNIFICANT PERMIT REVISION PERMIT NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC

I. The Permittee shall operate as per the approved fugitive dust control plan. An existing fugitive dust control plan is considered to be approved if the plan has been incorporated in the applicable State Implementation Plan, and the document addresses the fugitive dust sources specified in Condition II.A of this Attachment and includes the information specified in Condition II.B below.

II. Fugitive Dust Sources

A. The fugitive dust control plan shall address each of the fugitive dust emission sources listed below that are located at the facility:

1. On-site roadways used by trucks or other motor vehicles (e.g., front-end loaders) when transporting quantities of fugitive dust materials. Paved roads and parking areas that are not used by these vehicles do not need to be included in the plan (e.g., employee and visitor parking lots).

    a. Unloading of fugitive dust materials from trucks or railcars.

    b. Outdoor piles used for storage of fugitive dust materials.

    c. Bedding areas used for blending copper concentrate and other feed constituents.

    d. Each transfer point in conveying systems used to transport fugitive dust materials. These points include, but are not limited to, transfer of material from one conveyor belt to another and transfer of material to a hopper or bin.

    e. Other site-specific sources of fugitive dust emissions that the Administrator or the Director designate to be included in your fugitive dust control plan.

B. The fugitive dust control plan shall describe the control measures used to control fugitive dust emissions from each source addressed in the plan, as applicable and appropriate for the Permittee's site conditions. Examples of control measures include, but are not limited to, locating the source inside a building or other enclosure, installing and operating a local hood capture system over the source and venting the captured gas stream to a control device, placing material stockpiles below grade, installing wind screens or wind fences around the source, spraying water on the source as weather conditions require, applying appropriate dust suppression agents on the source, or combinations of these control measures.

ATTACHMENT "F": OPERATION AND MAINTENANCE REQUIREMENTS
AIR QUALITY CONTROL PERMIT NO. 53592
(AS REVISED BY SIGNIFICANT PERMIT REVISION PERMIT NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC

The operation and maintenance plan shall address the requirements in this Attachment, as applicable to the capture system or control device.

I. Preventative Maintenance

The Permittee shall perform preventative maintenance for each capture system and control device according to written procedures specified in the Operation and Maintenance Plan. The procedures shall include a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long term maintenance.

II. Capture System Inspections

The Permittee shall conduct monthly inspections of the equipment components of the capture system that can affect the performance of the system to collect the gases and fumes emitted from the affected source (e.g., hoods, exposed ductwork, dampers, fans) according to written procedures specified in the Operation and Maintenance Plan. The inspection procedure shall include the requirements in paragraphs 1 through 3 below as applicable to the capture system or control device.

A. Observations of the physical appearance of the equipment to confirm the physical integrity of the equipment (e.g., verify by visual inspection no holes in ductwork or hoods, no flow constrictions caused by dents, or accumulated dust in ductwork).

B. Inspection, and if necessary, testing of equipment components to confirm that the component is operating as intended (e.g., verify by appropriate measures that flow or pressure sensors, damper plates, automated damper switches and motors are operating according to manufacture of engineering design specifications).

C. In the event that a defective or damaged component is detected during an inspection, the Permittee shall initiate corrective action according to written procedures specified in the Operation and Maintenance Plan to correct the defect or deficiency as soon as practicable.

III. Copper Converter Department Capture System Operating Limits

The Permittee shall establish, according to the requirements in paragraphs 1 through 3 below, operating limits for the capture system that are representative and reliable indicators of the performance of capture system when it is used to collect the process off-gas vented from batch copper converters during blowing.

A. Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system when it is used to collect the process off-gas vented from batch copper converters during blowing. At a minimum, the Permittee shall use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect the process off-gas from the batch copper converters during blowing. Appropriate operating limit parameters for ventilation draft include, but

are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position relative to the fully open setting.

B. For each operating limit parameter selected in paragraph 1 above, designate the value or setting for the parameter at which the capture system operates during batch copper converter blowing. If the blister copper production operations allow for more than one batch copper converter to be operating simultaneously in the blowing mode, designate the value or setting for the parameter at which the capture system operates during each possible batch copper converter blowing configuration that is operated at the smelter (i.e., the operating limits with one converter blowing, with two converters blowing, with three converters blowing, as applicable to the smelter).

C. Include documentation in the plan to support the selection of the operating limits established for the capture system. This documentation shall include a description of the capture system design, a description of the capture system operation during blister copper production, a description of each selected operating limit parameter, a rationale for why the parameter was chosen, a description of the method used to monitor the parameter according to the requirements in Condition VIII.A.3.b of Attachment B of this permit, and the data used to set the value or setting for the parameter for each of the batch copper converter configurations.

ATTACHMENT "G": EQUIPMENT LIST
AIR QUALITY CONTROL PERMIT NO. 53592
(AS REVISED BY SIGNIFICANT PERMIT REVISION PERMIT NO. 58409)
FOR
FREEPORT-MCMORAN MIAMI, INC

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
ROD PLANT						
Shaft Furnace 15-burners	24 tons per Hr	Asarco	N/A	12254	MIR1030	Pre-1970
Holding Furnace 1-burner	10 tons capacity	Lindberg	N/A	12291	MIR1050	Pre-1970
Casting Structure (SCR)	84-inch wheel	Southwire	N/A	12350	MIR1060	Pre-1970
Roughing Mill	24 ton/hr	Morgan Mills	N/A	N/A	MIR134	Pre-1970
Finish Mill	24 ton/hr	Morgan Mills	N/A	N/A	MIR133	Pre-1970
Pickling System	24 ton/hr	Southwire	N/A	12459	MIR3010	Pre-1970
Coiler	24 ton/hr	Morgan mills	N/A	12348	MIR1097	Pre-1970
Thermal Breaker	0.82 MMBtu/hr	Fulton Thermal Corp.	FT-0080-C	12690	MIR8567	1984
Rod Plant Cooling Tower	2500 gpm	Flour	Counter Flow 1F60H-126-2424	12472	MIR3500	Pre-1970
Alcohol Tank #1	8000 gallons	Unknown	N/A	12456	MIR3007	1984
Alcohol Tank #2	8000 gallons	Unknown	N/A	12465	MIR3016	1984
Used Oil Tank #3	8000 gallons	Unknown	N/A	12458	MIR3009	1984
Used Oil Tank #4	8000 gallons	Unknown	N/A	12461	MIR3012	1984

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
ELECTROLYTIC REFINERY (685 Cells)						
Natural-gas fired Steam Boiler	16.7 MMBtu/hr	Johnston Boiler Co.	PFTA 400-4G-150S S/N 916301-01	10243	MIE10BR001A	1994
Natural-gas fired Steam Boiler	16.7 MMBtu/hr	Johnston Boiler Co.	PFTA 400-4G-150S S/N 916301-02	10244	MIE10BR001B	1994
Anode Wash Machine Demister	13,600 scfm	AISCO	94-1065	10469	MIE20SK003	1994
Cathode Wash Machine Demister	2000 scfm	TM Engineers	9123	10470	MIE20SK005	1994
Decant Scrubber System #1	5300 scfm	Carbotech	HRP43-48	10533	MIE20SK006	1994
Decant Scrubber System #2	5300 scfm	Carbotech	HRP43-48	10544	MIE20SK007	1994
Autoclave Scrubber	3500 scfm	Carbotech	HRP43-48	10705	MIE20SK001	1994
Slimes Dryer Baghouse	175 scfm	Flex-Kleen	36BVBC9	10685	MIE30BH001	1994
Prep Machine Cyclone		Hoffman Centrifugal Exhauster	MT2B06 TVAC200	10468	MIE20MA001	1994
Sulfuric Acid Tank	6000 Gallons	N/A	N/A	10402	MIE10TK042	1994
SMELTER						
IsaSmelt® Furnace	TBD	TBD	TBD	TBD	TBD	TBD
Start up/holding burner for IsaSmelt® Vessel	30 MMBtu/hr	North American	MISIVB	14032	MISISA30040	1991
Natural-gas fired IsaSmelt® Auxiliary Boiler	10.4 MMBtu/hr	Vapor Corp.	HS2-H8500-VHK300 HS2H85	13959	MISISA00385	1991

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
Natural-gas fired Change Room Boiler	0.745 MMBtu/hr	Lochinvar	KO8H00214490	NA	NA	1997
Electric furnace	3100 tons	Elkem	N/A	10309	MISELEFURNACE	1974
#1 (Inspiration) converter	200 Tons	Inspiration	N/A	10277	MISCONVETER1	1981
Hoboken Converter #2	130 tons	Hoboken	N/A	10278	MISCONVETER2	1974
Hoboken Converter #3	130 tons	Hoboken	N/A	10279	MISCONVETER3	1974
Hoboken Converter #4	130 tons	Hoboken	N/A	10280	MISCONVETER4	1974
Hoboken Converter #5	130 tons	Hoboken	N/A	10281	MISCONVETER5	1974
Anode Vessel #1	150 TPY	Pierce-Smith	N/A	13292	MISC0555.1	1987
Anode Vessel #2	150 TPY	Pierce-Smith	N/A	13293	MISC0555.2	1987
Hydrated Lime Silo	TBD	TBD	TBD	TBD	TBD	TBD
Anode Furnace Baghouse	TBD	TBD	TBD	TBD	TBD	TBD
Aisle Scrubber	TBD	TBD	TBD	TBD	TBD	TBD
Remelt/Mold pouring furnace	250 Tons	Pierce-Smith	N/A	13357	MISC0610.18	Pre-1974
Acid Plant Pre-heater	34 MMBtu/hr	North American	MIC201	12790	MISAC201	1997
Acid Plant	TBD	N/A	N/A	TBD	MISACIDPLANT	TBD
Dust Collector, Flux Bin	1,000 acfm	Donaldson	16PJD6	14016	MISISA20130	1991

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
Dust Collector, Coal Bin	1,000 acfm	Donaldson	16PJD6	14017	MISISA20131	1991
Dust Collector, Reverts Bin	1,000 acfm	Donaldson	16PJD6	14018	MISISA20132	1991
Dust Collector, Conc. Bin 040	3,000 acfm	Donaldson	16PJD8	14019	MISISA20133	1991
Dust collector, Conc. Bin	3,000 acfm	Donaldson	16PJD8	14020	MISISA20134	1991
Dust Collector, Anode Furnace Bin	TBD	TBD	TBD	TBD	TBD	TBD
Dust Collector, Hydrated Lime Bin	TBD	TBD	TBD	TBD	TBD	TBD
Vent Fume Scrubber	300 Kscfm	Airpol	N/A	13884	MISF45032	1991
Vent Fume Wet Electrostatic Precipitator #1	100 Kscfm	Beltran	BTP-10x17.5	826254	MISFWESP.01	2003
Vent Fume Wet Electrostatic Precipitator #2*	100 Kscfm	Beltran	BTP-10x17.5	826258	MISFWESP.02	2003
Vent Fume Wet Electrostatic Precipitator #3*	100 Kscfm	Beltran	BTP-10x17.5	826259	MISFWESP.03	2003
Vent Fume Wet Electrostatic Precipitator #4	TBD	TBD	TBD	TBD	TBD	TBD
Vent Fume Wet Electrostatic Precipitator #5	TBD	TBD	TBD	TBD	TBD	TBD
Vent Fume Wet Electrostatic Precipitator #6	TBD	TBD	TBD	TBD	TBD	TBD

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
Dust Collector Mag. Oxide Bin	3000 scfm	Griffin Environmental	N/A	13889	MISF45045	1991
Acid Plant Tail Stack Scrubber	140 Kscfm	Airpol	N/A	13086	MISA60050	1991
Dust Collector Mag. Oxide Bin	3000 Kscfm	Griffin Environmental	N/A	13087	MISA60055	1991
Sulfuric Acid Tank #1	2,000 Gallons	N/A	N/A	13025	MISAT3011	1974
Sulfuric Acid Tank #2	2,000 Gallons	N/A	N/A	13024	MISAT3012	2005
Sulfuric Acid Tank #3	2,000 Gallons	N/A	N/A	13022	MISAT3013	1974
Sulfuric Acid Tank #4	2,000 Gallons	N/A	N/A	13023	MISAT3014	1974
Sulfuric Acid Tank	10,000 Gallons	N/A	10,000 tons	837208	707SAT3015	2005
Sulfuric Acid Tank	10,000 Gallons	N/A	10,000 tons	837209	707SAT3016	2005
"A" Cooling Tower	4,500 gpm	Ecodyne	N/A	13026	MISAT401A	1974
"B" Cooling Tower	6,500 gpm	Ecodyne	E60-12076	13027	MISAT401B	1970 modified in 1985
"C" Cooling Tower	16,500 gpm	Ecodyne	N/A	13035	MISA00750	1992
"E" Cooling Tower	5,600 gpm	Ecodyne	2- 24x24 cells	31200	MISF210	1997
"D" Cooling Tower (Not in service)		Unknown	N/A	13016	MISAT1005	1978
"F" Cooling Tower	9500 gpm	Midwest Towers	NA	707SAF310	NA	2008
Mastermag Electromagnetic Head Pulley	100 TPH	KAFKA	Model # 24 EPH 6, Serial # M.16112C	839969	707S1003	June 2005

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
Gasoline Storage tank	12,000 galons	N/A	N/A	N/A	100000905478	Pre-1986
ENGINES NOT SUBJECT TO NSPS REQUIREMENTS						
Screening Machine with Diesel Engine	63 HP	Finlay	59B	FD480322	N/A	Post 1998
NEW CI ENGINES SUBJECT TO NSPS SUBPART IIII						
Diesel Emergency Engine (IsaSmelt®)	789 HP	TBD	TBD	TBD	TBD	TBD
Diesel Feed Water Pump	450 HP	TBD	TBD	TBD	TBD	TBD
Diesel Emergency Engine (Converters)	1,150 HP	TBD	TBD	TBD	TBD	TBD
Diesel Fired Emergency Generator/Engine (Moonshine Hill)	100 KW (134 HP)	Cummins	100 SGAA	TBD	F110225761	2011
Diesel Fired Emergency Generator/Engine (Hwy 60 Comm. Office)	20 KW (27 HP)	Cummins	20 DSKBA	TBD	F110225182	2011
Diesel Fired Emergency Generator/Engine (Radio Tower)	50 KW (67 HP)	Cummins	50DSFAC	TBA	TBD	2011
Diesel Fired Emergency Generator/Engine (Smelter Guard house)	35 KW (47 HP)	Cummins	35DGGD	TBA	TBD	2011

Description	Capacity	Manufacturer	Model/ Serial Number	Equipment # Miami	Plant #	Installed
Diesel Fired Emergency Generator/Engine (Uptake Hood Back up Circulation Pump)	149 KW (200 HP)	TBD	TBD	TBD	TBD	TBD
Diesel Fired Emergency Generator/Engine (Main Server Room)	300 KW (402 HP)	Cummins 300 DQDAC	TBD	TBD	TBD	TBD
Air Compressor engine	Less than 500 HP	SullAir	1600HAFDTQ	707S1274	201111100009	2011
Air Compressor engine	Less than 500 HP	SullAir	1600HAFDTQ	707S1275	201111100086	2011
NEW SI ENGINES SUBJECT TO NSPS SUBPART JJJJ						
Emergency Generator	128 kW (172 HP)	Kohler	TBD	195REZG	TBD	TBD
Emergency Generator	128 kW (172 HP)	Kohler	TBD	195REZG	TBD	TBD

Note: The prefix "707" may be also be used in place of "MI" for the entries in the column titled "Plant #" in the above table.
N/A: Not available
TBD: To be decided